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INTERNATIONAL

AUGUST 1954

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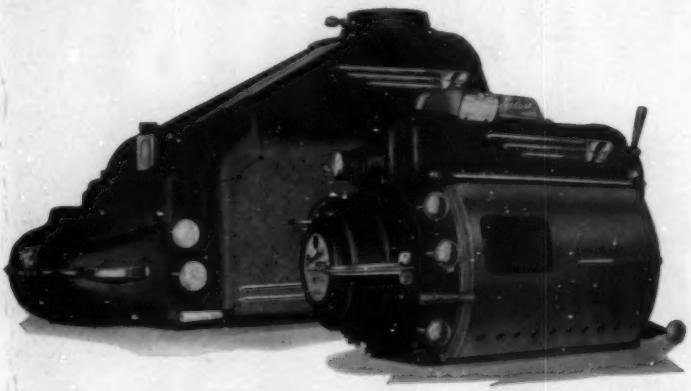

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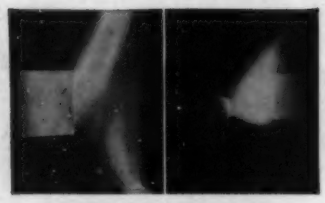

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INTERNATIONAL PROJECTIONIST

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MONTHLY CHAT

IF THERE are any projectionists who don't realize their critical importance to the industry in these days when new processes are running wild, their attention is called to the following item which recently appeared in *Film Daily*:

"Just to illustrate how tough it can be for the average theatre man to handle the new types of equipment and lenses with which he must be equipped to present the best in shows, here is a true story about a recent test of various lenses conducted by six optical experts.

"These men are acknowledged to be experts in their field. One of them yelled up to the booth to change the focus of one of the lenses just a tiny bit. *Before* the expert in the booth had a chance to touch the lens and make the suggested change, the man who had asked for it yelled: 'That's it! Don't touch it again. It's perfect now.'"

This is the kind of situation we run into in the theatre today. The so-called "new processes" have awakened the industry to the technical resources it possessed for years but never bothered to use until Tv was driving the exhibition business to the wall. At the same time, exhibitors are confronted with a situation where they must select new and often unstandardized lenses, screens, and sound equipment even though they have little or no technical knowledge.

Competent Advice Available

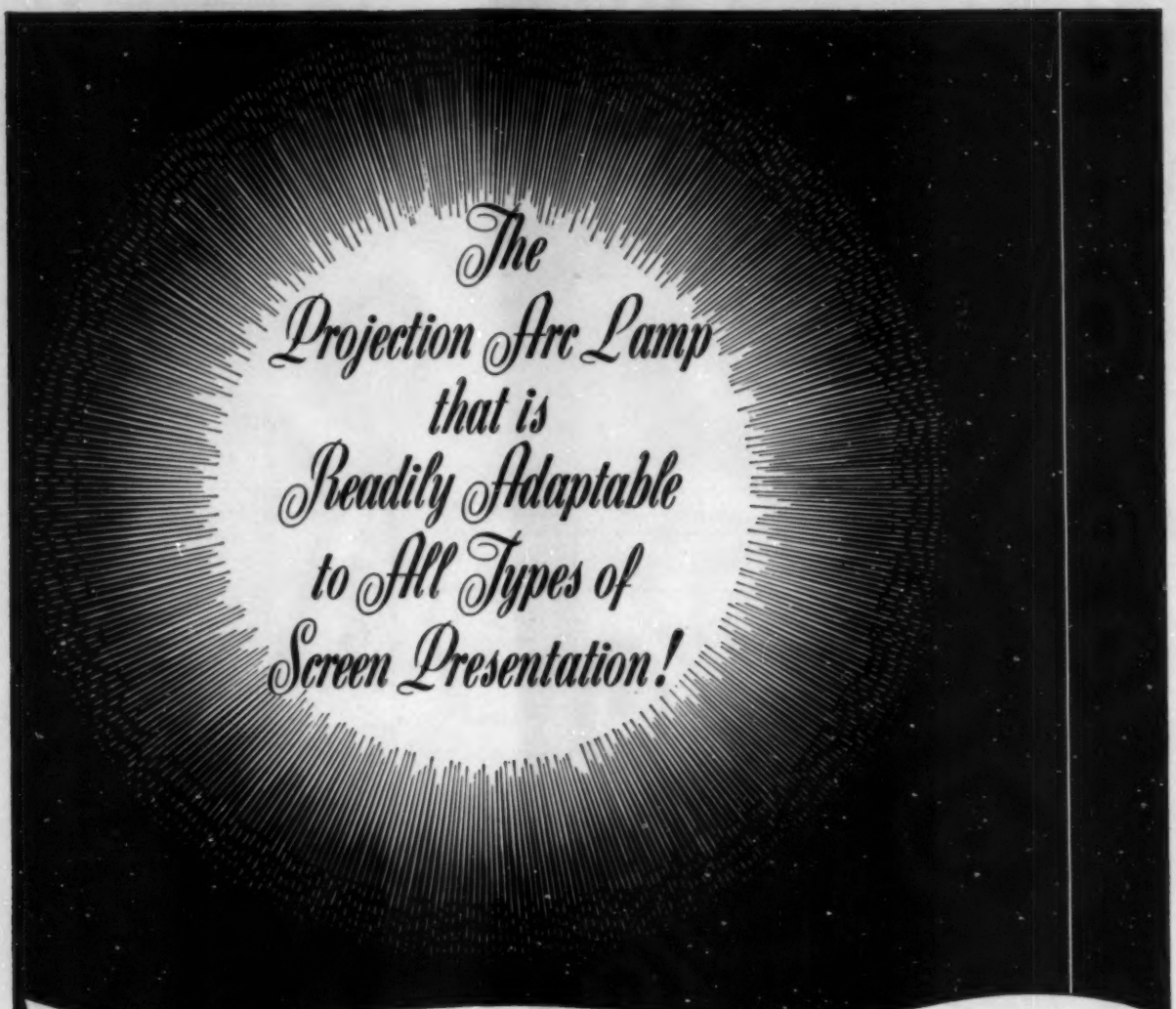
Where can an exhibitor get competent advice in such a situation? Granted, he can receive information and assistance from theatre supply dealers and their technical men. But is this enough? A man who sells would not be doing his job properly if he didn't push his own products.

The obvious person to consult is the projectionist—the only technically-minded person in and about the theatre. He has had years of experience in judging, for instance, the performance of lenses, and he probably has well-founded knowledge of what size and shape of picture is practical in a given house.

Another segment of the film industry that is beginning to realize its dependence on the projectionist is the production field. This is shown by 20th Century-Fox's announcement that it has prepared a special reel of film which is supposed to explain to projectionists exactly what should be done to obtain the best results from CinemaScope film. This reel is said to suggest methods of proper handling of sound levels, keeping the picture in focus, *etc.*

Since most of the difficulties in handling CinemaScope film are *not* the result of carelessness in the projection

(Continued on page 34)



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VOLUME XXIX AUGUST 1954 NUMBER 8

An Evaluation of Optical Sound

By ROBERT A. MITCHELL

Despite competition from magnetic sound, optical reproduction remains the most important method of sound reproduction in motion picture theatres. This is the first of two articles which point out certain advantages of optical soundheads.

FOLLOWING many months of much intense aural and visual tests, the writer is convinced that predictions that photographic (optical) sound is a "dead duck" are quite wrong. The longer he listens to magnetic sound reproduction the greater is his appreciation for regular optical-track sound reproduction, which is comparatively trouble-free and certainly far less expensive.

Right at the outset, let's get this magnetic sound business straight. Studios prefer magnetic recording on account of its low noise-level and high fidelity *when properly handled.* The magnetographic tracks must be at least 7 mm (0.276 inch) in width for the best sound, and the magnetic recording heads, which wear out rather quickly, must be in tip-top condition. In addition to these advantages, magnetic tracks make possible immediate playback because no processing of any kind is needed.

Delicate Adjustment Needed

But we are talking now about *recording,* not reproduction. If magnetic film is very carefully handled and reproduced in carefully constructed and operated reproducers, it will indeed provide excellent reproduction. This is a far cry from the narrow CinemaScope tracks which get banged about a bit in theatre use and must go through the entire film-course of picture projectors.

From the re-recorded, or "dubbed," magnetic tracks photographic sound negatives are made for standard release printing. So with the advent of magnetic recording, optical reproduction is better than ever. A number of photographic steps have been eliminated, hence photographic distortions have been minimized and "ground noise" reduced to the vanishing point. Thanks to the vocal magnets, modern photographic sound reproduction would be hard to beat, *and cannot be excelled for reproduction in theatres under* NORMAL *working conditions.*

Unlike the designers of CinemaScope film, the pioneers of optical recording showed exceedingly good judgment when they standardized the width of the photographic soundtrack at 0.1 inch (2.5 mm) and the rate of film-travel at 1½ feet or 24 frames per second. These specifications are more than adequate for high-fidelity optical sound. (Fig. 1).

Accidental Erasure

Narrow tracks is not the only defect of CinemaScope sound. All magnetic tracks are subject to partial erasure in normal use and to the accidental pickup of noise, defects much more serious than the noises caused by scratches and splices in optical tracks. ("Push-pull" optical recording largely does away with this slight nuisance, however.) The magnetic multiple-unit reproducing heads get worn and must be replaced frequently at high cost (just as worn phonograph needles require changing) if attenuation of the higher frequencies is not to result in "mumbly" speech. There is no need to speak here of splicing difficulties experienced with picture film carrying four magnetic tracks striped on the base-side of the film stock.

Sound prints of the standard optical-track variety are much less expensive and more quickly processed than magnetic prints. When the picture is plain black-and-white no special thought need be given to the sound-

track during machine development. In the case of multilayer dye-coupler color films it is only necessary to redevelop the soundtrack to a silver image.

Even this simple extra step may be eliminated by employing blue-sensitive photoelectric cells in projectors. Ordinary photocells are responsive to infrared rays transmitted by the colored dyes, but blue-sensitive cells, responsive to shorter wave-lengths blocked by certain combinations of dyes, give a satisfactory signal output with dye tracks.

Technicolor Sound Tracks

Technicolor imbibition-printed color films pose a tough problem with regard to optical reproduction. Although the blurriness that results is too slight to spoil the clarity of the picture-images, a soundtrack printed by dye-imbibition would give very poor sound. This is why all Technicolor movies are printed on regular photofilm having a silver soundtrack.

With silent movies, Technicolor imbibition prints were made on simple gelatine-coated celluloid, a type of stock much less expensive than raw stock coated with photosensitive emulsion. Even so, Technicolor prints having silver-image soundtracks are not nearly so high in price as multilayer dye-coupler color prints.

A magnetic reproducer is simpler than an optical reproducing system. It needs no exciting lamp and no optical tube containing a slit and several lenses. With no exciting lamp, no exciter power-supply is needed; and with no optical tube, no photoelectric cell, condensing lenses, mirrors, *etc.*, are used. Also, no D.C. voltage is required for magnetic reproducing heads.

But in spite of this simplicity, the optical method is less costly, more stable in operation, and far more likely to give consistently good results.

Optical Equipment Durable

The optical tube of the photosound reproducer is analogous to the needle of a phonograph and to the iron "brushes" of a magnetic reproducer. An important difference is that the optical tube never gets dull or wears out. Properly cared for, the optical tube of a standard soundhead will last a lifetime, only requiring a check on focus every month or two.

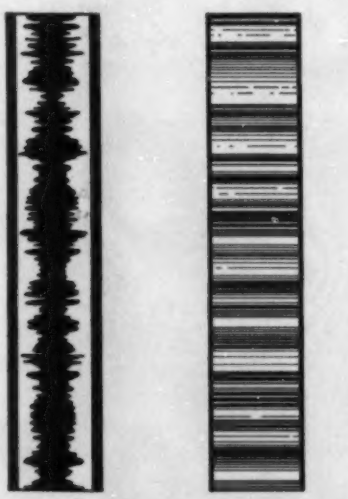
The optical tube produces a "scanning beam" which cuts the soundtrack. This is formed from the light emitted by the exciting lamp, and is a very thin line of light as long as the the soundtrack is wide. The thinness of the beam is very important. The higher frequencies of recorded sound assume the form of delicate, thread-like lines and striations in the soundtrack. If such narrow lines are to modulate the scanning beam passing through the film, the lenses of the optical tube must be of good quality, and the focus must be *very sharp*.

Forming the Scanning Beam

There are different methods of forming the scanning beam, hence different types of optical tubes. In the early days the filaments of exciting lamps were made of a single strand of tungsten wire tensioned at one end by a steel spring to prevent sagging. With this type of exciter, it was only necessary for the lenses of the optical tube to focus a reduced image of the straight, white-hot filament on the soundtrack.

To avoid fadeaway of light at the ends of the scanning line, due to the cooling action of the filament supports, only the middle part of the filament was imaged on the film. The scanning beam was 0.084 inches (2.13 mm) in length and about 1 mil (0.001 inches or 25 microns) in width at the point where it penetrated the soundtrack.

This method had two serious disadvantages: the projectionist found it necessary to refocus the optics every time a new exciting lamp was inserted, and the vibration of the running projector caused the long, thin, stretched filament to vibrate like a rubber band. As a result, the sound was marred by "whiskers."



VARIABLE AREA VARIABLE DENSITY

FIGURE 1

Better Exciter Lamps

To overcome these drawbacks, the glowing exciter filament was focused on a mechanical slit, and a reduced image of the mechanical slit focused on the film. This permitted the use of coiled-filament exciting lamps and eliminated the danger of raspiness caused by filament vibration. Both the condensing lens, which concentrated the light on the slit, and the microscope-objective, which focused the slit on the film, were held in fixed position in the optical tube with the mechanical slit between the two lenses.

This system, resembling the optical layout of a motion picture projector, worked perfectly with variable-density soundtracks, but not with variable-area tracks. The coils of the filament focused on the slit resulted in variations of brightness along the length of the slit-image. When the sawtooth patterns of variable-area tracks moved back and forth across these brightness variations, distortion appeared in the reproduced sound.

To eliminate these distortions, RCA introduced the so-called "stereopticon" type of optical tube in which the slit is placed close to the condensing lens, and the image of the exciter filament is concentrated on the objective which focuses the evenly illuminated slit on the film. This type of optical tube is in common use today.

Scanning Beam Dimensions

The slit-image produced by the older optical tubes was 1 mil (25 microns) wide, while modern American optical tubes produce a 1¼-mil (32-micron) slit-image for increased sound output and lower ground noise. Attenuation, or weakening, of the high frequencies (2,000 to 10,000 cycles per second) by the wider slit is not appreciable, and the 25% increase in "gain" is very desirable. With a lower volume-setting the projectionist obtains the same level of sound, as he did formerly at a higher setting with the narrower slit. Photocell hiss is reduced, and very fine scratches on the

(Continued on page 33)

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The Optics of CinemaScope

By RICHARD ALTMAN

Scientific Bureau
Bausch & Lomb Optical Company

ALTHOUGH many general articles on CinemaScope have appeared, relatively few have concerned themselves with the optical principles involved. The more familiar type of lenses such as those used in projection of motion pictures enlarge the image on the film and transfer it to the screen.

The picture on the screen is the same as that on the film (Fig. 1) only the size has been changed due to the magnification of the projection lens. The magnification is the number of images on the film needed to cross over the image, and will be the same in all directions if the picture on the film is to be reproduced faithfully on the screen.

In CinemaScope the picture on the screen is different from that on the film (Fig. 2). Circles on the film are projected oval, showing a difference in magnification between the horizontal and vertical directions. The lens which accomplishes this is called an "anamorphic" because it "reshapes" the image.

Alteration of Image by CinemaScope Lens

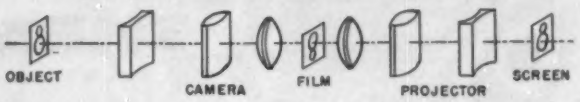
In the illustrations the lens is shown projecting at three times magnification. When a CinemaScope lens is added the magnification remains at three times in the *vertical* direction but is now *six times* in the *horizontal.* The focal length of the projection lens is thus effectively halved in the horizontal direction, while remaining unchanged in the vertical direction.

The complete optical system for CinemaScope includes a conventional camera lens plus a CinemaScope attachment for recording a squeezed image on the film, and a conventional projection lens plus a CinemaScope projection attachment to expand the image to normal proportions on the screen. Since all CinemaScope pictures are photographed in a squeeze ratio of two times, they must be projected by an anamorphic attachment fixed at two times expansion so that the final picture will not be distorted.

CinemaScope attachments must have a high degree of optical correction in order that the quality of the projected image will not suffer. A cylinder lens system was chosen by Bausch & Lomb over a variable-type prism system as affording the best quality imagery at any given squeeze ratio. In addition, the projection attachment must work well with lenses of various focal lengths.

For instance, the anamorphic attachments must have sufficient diameter to maintain the optical speed of long-

FIG. 3. CINEMASCOPE OPTICAL SYSTEM



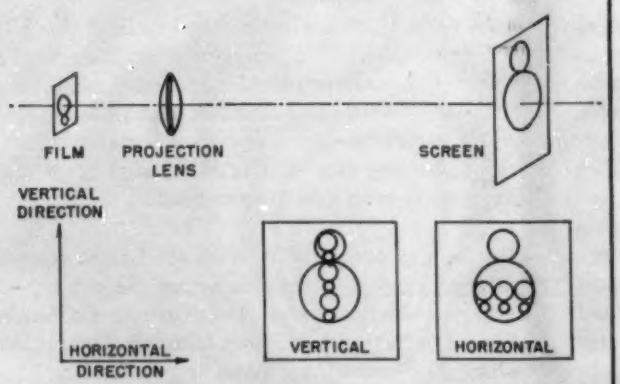
focal-length lenses and yet allow enough light to get to the corners of the screen when used with short-focal-length lenses. A single attachment, meeting these mechanical specifications would require a very bulky lens.

C'Scope Lens Not a Corrective Unit

For this reason Bausch & Lomb supplies two forms of CinemaScope projection attachments (Fig. 4). Projection attachment I for lenses of 3- to 5-inch focal length in 2.781-inch barrels, and attachment II for lenses of 5- to 7-inch focal length in 4-inch diameter barrels. The projectionist is thus assured of top quality projection with a minimum of extra bulk to handle.

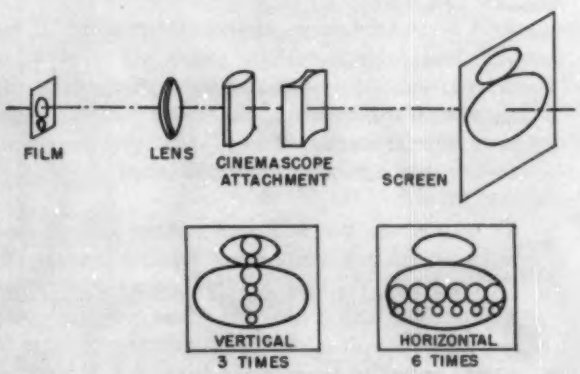
Furthermore, the attachment *will not* correct any defects that already exist in his projection lens. In fact, those defects are more noticeable when the CinemaScope attachment is added because of the extra magnification introduced in the horizontal direction. For this reason, lenses that may appear to give an acceptable image in normal projection may give poor imagery in Cinema-

FIG. 1. MAGNIFICATION OF FAMILIAR TYPE LENS



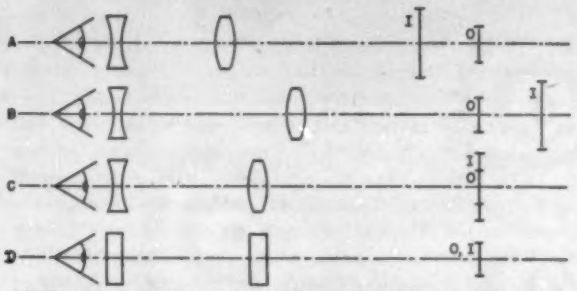
Three times magnification in both vertical and horizontal directions.

FIG. 2. CINEMASCOPE MAGNIFICATION



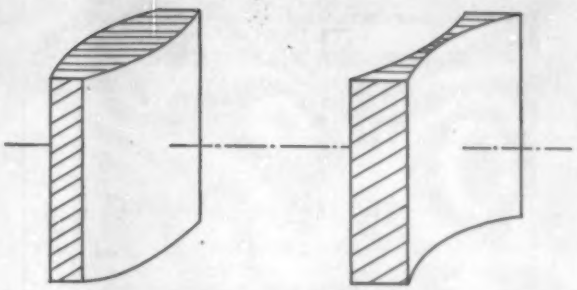
The CinemaScope attachment raises the horizontal magnification two times

FIG. 5. SETTING CINEMASCOPE LENS FOR "THROW"



KEY: O—object; I—image; A & B—focusing telescope; C—image on object; D—flat plates of the glass-image on object.

FIG. 6 CYLINDRICAL ANAMORPHIC LENSES



Cylindrical anamorphic lenses are the natural result of combining C and D of FIG. 5.

Scope projection. It is essential that top-quality projection lenses be used to obtain the best projected image.

The CinemaScope attachment and projection lens are locked together and focused as a unit in the normal manner. It is necessary to preset the CinemaScope attachment for the projection throw. This setting is completely independent of the focal length of the projection lens. It can be likened to the adjustment of a telescope for objects at different distances.

By changing the spacing between the elements (Fig. 5) the image may be formed either in front of Fig. 5A, behind Fig. 5B, or on the object itself, Fig. 5C. A CinemaScope lens forms the image on the object. The main difference between a CinemaScope attachment and a telescope is that in the former the magnification must be confined to the horizontal direction. In the vertical direction the image appears unchanged in size and position—like when the object is viewed through a simple flat plate of glass (Fig. 5D). In both directions the image is on the object so that it appears sharply focused. A natural result of combining Figs. 5C and 5D is a cylinder lens system which has straight sides vertically and curved sides horizontally.

C'Scope Lens Acts Like Reversed Telescope

Actually the CinemaScope lens is used like a *reversed* telescope in that when the picture is taken it gives a smaller rather than a larger image. Because the image is smaller, more of the object can be put on the same size film. In projection the same lens expands the image because the direction of the light through the lens is *reversed*. The projected picture contains *more of the object*, which means a larger projection screen is needed.

CinemaScope gives a screen size 2.55 times as wide as it is high wiht the anamorphic squeeze ratio of 2 times. The whole film frame is used for picking up the maximum amount of light. If a non-anamorphic system is used to give the same screen dimensions as CinemaScope, there will be a loss of light on the screen. The ratio of the amount of light on the screen for an anamorphic system as compared with a non-anamorphic system giving pictures of the same dimensions is the squeeze ratio of the anamorphic lens. That is, the amount of light is greater for larger squeeze ratios.

For small squeeze ratios the gain in light may not be sufficient to warrant the added expense of using anamorphic lenses. The gain in screen illumination and the reduction of film grain are the two major optical advantages of an anamorphic over a non-anamorphic system.

B. & L. CinemaScope anamorphic projection attachments.

★ ★ ★

Do You Remember - - August 6, 1926?

THE death-knell of the old silent motion picture in the theatre exhibition field was sounded just 28 years ago when on August 6, 1926, John Barrymore appeared in *Don Juan* at the Warner Theatre in New York City. Barrymore, the star, and others of the cast of *Don Juan* were inaudible, however, since this film offered only a "fully synchronized and recorded musical score." But on a surrounding program of short subjects opera and concert, performers sang and played, the sound being played back from discs synchronized with the pictorial imagery.

Sponsoring this historical film exhibit were the Warner brothers—Jack L., Sam L., Albert W. and Harry M.—whose activity in the motion picture business goes back to 1906, when they opened their first theatre at New Castle, Penn. Subsequently, the Warners became top-flight producers of silent feature pictures, their steady progress toward their present eminence in the film world being marred only by the death of Sam Warner.

The equipment used for the first public exhibition of

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President of Motion Picture Producers and Distributors of America welcomes VITAPHONE.

The New York Philharmonic Orchestra
Henry Hadley conducting, Overture from "TANNHAUSER", Wagner.

Marion Talley
By arrangement with the Metropolitan Opera Company, Caro Nome from "RIGOLETTO", Verdi, or "Home Sweet Home."

Efrem Zimbalist and Harold Bauer
Variations from "KREUTZER SONATA", Beethoven.

Roy Smeck
in "HIS PASTIMES"

Anna Case
"LA FIESTA", supported by the Cansinos and Metropolitan Opera chorus. Accompanied by the Vitaphone Symphony Orchestra, Herman Heller conducting.

Mischa Elman
Josef Bonime, accompanist
"HUMORESQUE", Dvorak.

Giovanni Martinelli
By arrangement with the Metropolitan Opera Company.
Vesti la Giubba, from "I PAGLIACCI", Leoncavallo.
Accompanied by the NEW YORK PHILHARMONIC ORCHESTRA.

Incidental music to the above numbers played by members of the New York Philharmonic Orchestra, Herman Heller conducting.

Program Subject to Change Without Notice

Here is a reproduction of the fateful Vitaphone program that revolutionized the motion picture business just 28 years ago this August 6 of 1954.

"talking pictures" on that sultry August night 28 years ago was the famed "Vitaphone" unit which, when favored by good reproducing fortune, effectively synchronized sound and vision and offered a realistic audible film presentation. Vitaphone was the outcome of supplemental extensive development work, following years of pioneering work by unsung individuals, by Western Electric Co. and Bell Telephone.

To say that *Don Juan* revolutionized the motion picture business is putting it mildly: history was made that August night; and the motion picture industry, too, was made (and very nearly unmade) at a time when slumping box-office receipts threatened the movies' theretofore vise-like grip on the entertainment preference of the theatre-going public.

The First "All-Talking" Picture

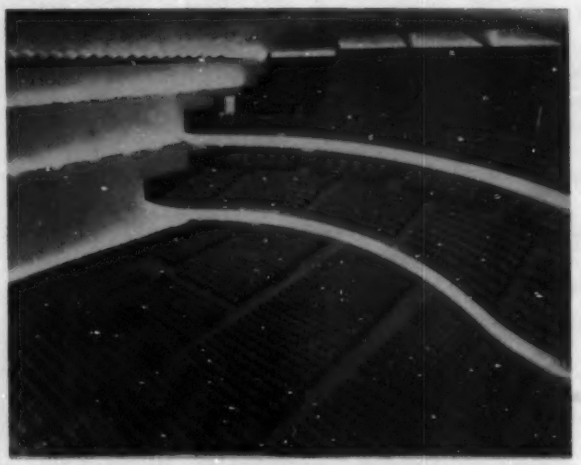
Oddly enough, it wasn't until 1928, two years after *Don Juan*, that the first "all-talking picture" (as they were then termed) was publicly exhibited, also by the Warners; although six months after Don Juan, William Fox and Theodore Case introduced the Movietone Newsreel, a sound-on-film process.

The scientific development of sound pictures traces its ancestry to, among several other *film* pioneers, Dr. Lee De Forest, the latter by means of his development of the "audion" (three-element) amplifying tube. In 1887 Edison wrote:

"The idea occurred to me that it was possible to devise an instrument which should do for the eye what the phonograph did for the ear, and that by a combination of the two all motion and sound could be recorded and reproduced simultaneously." Two years later, on October 6, 1889, Edison gave the first demonstration of a small motion picture mechanically synchronized with a phonograph record. By 1913 Edison has made nearly twenty brief motion picture subjects for the "Kinetophone," as the Edison device was known, and these were shown in a number of theatres in various parts of the country.

De Forest developed a sound-on-film method of synchronizing sound with motion pictures which he called "Phonofilm." Demonstrations of Phonofilm were given in De Forest's Highbridge, New York, laboratory in 1921; and in 1923 and 1924 he gave demonstrations of Phonofilm in the Rivoli and Rialto Theatres, N. Y. City.

Lest you suspect that our friends in distant lands are not fully conversant with technological advances—visually, aurally and, most important, patron comfort—eye this vast expanse of the Gaumont Palace Theatre in Paris, France. One of the largest in the world, this 5500-seat theatre provides a Raytone screen 73 feet wide by 44 deep, and was equipped by Westrex to show any existing aural-visual process, including full stereo sound.



Further evidence of technological know-how in distant lands is this view of the screen in the Regent Theatre, Sydney, Australia. Equipped to show any aural-visual process, with full stereo sound, by Westrex Corp.

A Caustic Complaint from the West Coast

To the Editor of IP:

After receiving the June issue of IP, I was amazed at your lack of knowledge on stereophonic sound and wide, curved screens. First, let us analyze the situation. You say, "One down—Much More to Go," "3-D is Dead!" Why? Who killed it? Who helped kill it? 3-D will never die.

When CinemaScope came along, a lot of us projectionists were against it for technical reasons as you seem to be. We didn't believe that this process could produce a picture of adequate quality. However, I take definite issue with you on the question of stereophonic sound. That's another horse, and there you are dead wrong. Where do you get your information? Surely not from the West Coast.

You make a statement that magnetic sound is not as good as optical. This is ridiculous. You have never heard optical sound go to the range that magnetic sound does. Of course magnetic sound is sharper and crisper! It's bound to be. When presented properly it makes optical reproduction sound like the old Edison Gramaphone. If you want to talk about stereo sound, let's get the facts straight.

Then you denounce the curved screen. Why? And the metallic-surface screen! Why?

You go on to say that a manufacturer of lamps suggests using 135 amperes to obtain 15 foot-lamberts at the center of a white matte screen. This also is ridiculous. We are burning 78 amperes using water jackets with 9-mm black positive carbons and 8-mm negatives in a Peerless Magnarc. Our results, checked by the Motion Picture Research Council, showed 45 foot-lamberts on the center of a Bodde metallic screen, so you cannot sell me on your test. Who made it? By the way, our screen is 45 feet by 24½ feet, making your comparison seem even more foolish.

HAROLD T. GOLDSTEIN

Chief Projectionist, Phil Isley Theatres, Los Angeles

EDITOR'S REPLY: Thank you very much for giving us permission to publish your interesting letter. As you already know, we have been predicting the demise of 3-D for a long time, feeling that binocular pix had been accorded fatal handling in production and distribution. We also felt that most of the boys who do the experimenting took the day off when 3-D came knocking at their door.

Yes, we were all set to crow "we told you so" when your letter arrived to inform us that "3-D will never die." Apparently, this process lives on in spirit even though no significant 3-D features are in production.

Aluminum Screens

So you don't care much for CinemaScope? We've had doubts about it ourselves, but the very things that bothered us you seem to like—magnetic sound from narrow tracks and curved, aluminum screens. We have also found plenty of fault with anamorphic lenses in the past, though we are happy to report that the newer ones are quite an improvement.

You say your optical sound resembles Edison's first attempt. Well, perhaps you should come to the East Coast to hear an optical track played on top-notch, high-fidelity sound equipment which represents the criterion of expected quality back here. Hollywood can be proud of us Easterners for having exhibitors, projectionists, and sound service engineers who know their business. Frankly, we are concerned about your terrible optical sound. Are you sure that your equipment is in good running order?

Optical sound easily attains 10,000 cycles of undistorted signal with either the older 1-mil or the later 1¼-mil scanning beams, which is anywhere from 1,000 to 2,000 cycles higher than modern theatre speakers are designed to reproduce. Except in *very* unusual cases, nothing over 9,000 cycles ever reaches the ears of a motion-picture audience from the screen, no matter what type of soundtrack is played.

In regard to your special questions, we'll play the same old record over again.

We condemn curved screens because (1) they produce unequal amounts of perspective distortion for observers in the side seats, and (2) they distort the picture very badly for all patrons except those in the highest balcony seats when a moderate or large projection angle exists. It was explained by Robert A. Mitchell on page 8 of the May issue of IP why this distortion, intolerable from the ground floor, cannot be seen from the projection room (where the audience *isn't*). On the same page of IP you will also find a diagram of this curved-screen distortion.

Disapprove Aluminum Screens

We strongly disapprove of aluminum surface screens in all but long, narrow theatres because: (1) They produce an excessively *bright* picture for patrons seated in the middle of the auditorium and an excessively *dim* picture for patrons seated in the down-front side seats; (2) they reveal every tiny wrinkle in the screen by a blotchiness of the illumination; (3) they reveal seams as dark lines; (4) they exaggerate pictorial contrasts in the deeper pictorial tones while masking the fine detail in the highlights, and (5) they usually impart a grainy appearance to the picture for patrons seated close to the screen.

Some of these defects are minimized in long, narrow theatres, in which aluminum screens enable relatively low-powered arc-lamps (such as yours) to be used.

You have been so severe with us concerning the matter of arc lamps that we are forced to accuse you of neglecting your homework. If you will turn to page 11 of the June issue of IP, you will find out who made the tests on screen illumination that you object to. On that page is an advertisement of the Strong Electric Corp., an ad that contains the screen-light data you seek. You must have missed seeing it.

The Strong test is quite factual, and not in the least misleading. This test proves that the Strong Super "135" lamp burning 135 amps. gives almost twice as much light as your water-cooled lamp burning uncoated positive carbons at 78 amps. It is possible for you to get more light at

(Continued on page 30)

1 The heavy tripod is carried to top of parallel where it is set up to take the Mitchell CinemaScope camera mounted in watertight blimp.

2 Two husky grips wearing Aqua-lung equipment struggle through rocky coral beds with cumbersome tripod, lowered from nearby supply ship.

3 As when filming on land, a camera parallel is moved into position 30 ft. underwater for a new setup for "20,000 Leagues Under The Sea."

4 Cameraman Gabbani and Director Richard Fleischer (dark suit) survey scene through special CinemaScope viewfinder before camera is set up.

5 Mitchell camera in pressurized case is carried to parallel by two assistants; 175-pound camera has neutral buoyancy underwater.

6 Heavy hemp mat is placed on ocean floor to reduce amount of sand kicked up by the divers, thus increasing production time underwater.

Cameramen, Grips Work Underwater

The enormous problems faced by the Walt Disney Crew filming "20,000 Leagues Under the Sea" are described in this article abstracted from *American Cinematographer*.

By TILL GABBANI

Photos by Lt. Com. Charles Hooper, USN

THIRTY FEET underwater in the Caribbean, off Nassau, Bahamas, some eighty motion picture artists and technicians wearing safety diving gear recently completed what unquestionably was the most challenging assignment ever faced by a Hollywood motion picture troupe. Here on the ocean floor was filmed in Eastman Color with a CinemaScope lens the fabulous underwater sequences for Walt Disney's version of Jules Verne's "20,000 Leagues Under The Sea."

During this assignment there was photographed more underwater footage than for any other motion picture on record. The scenes for the most part were not the familiar underwater swimming shots of one or two people, but embraced carefully-planned and enacted scenes that required painstaking rehearsals, and the use of props and set pieces laboriously brought to the ocean floor.

Of equal interest is the fact that there were more people working underwater at one time in the filming of these scenes than in any other previous attempt at underwater film production. In the key dramatic sequence — the burial under sea of a slain shipmate of the *Nautilus* crew—there was a total of forty-two persons working simultaneously before and behind the camera.

7 Grips erect set piece which serves as background for an underwater action scene. Note one diver clad in regulation Navy diving gear.

8 Prior to starting camera, Till Gabbani takes light reading with meter, which is encased in protective plastic chamber attached to cord.

9 Director Fleischer writes last-minute instructions on underwater slate to cameraman before shooting begins on big action scene.

10 Biggest underwater scene ever photographed for a Hollywood production: the burial sequence in Disney's "20,000 Leagues Under The Sea."

11 The shooting over, cameraman Gabbani prepares to surface, carrying his exposure meter, underwater slate, and "lily" or color chart.

12 Closeup of pressurized, watertight blimp built by Disney engineers for Mitchell camera used in filming underwater scenes in color and C-Scope.

Because most of the undersea action consisted of lengthy routines rather than brief shots of men swimming, etc., our filming operations approximated those of the studio sound stage. We used a standard Mitchell camera for the stationary shots, heavy metal tripod, parallels, etc., and were assisted by the usual crew of camera assistants, prop men, and grips. About the only thing missing was the big studio lights. Here, illumination was supplied by sunlight.

For most of the crew, diving equipment consisted of the well-known Aqua-lung with air-chambers that strap to the back and permit one to remain submerged for 60 minutes; a pair of swim fins; and a diving mask. Augmenting the crew and cast directly involved in the underwater sequences were a number of expert divers.

The Carribean location site chosen for this production is perhaps the most ideal for underwater cinematography. Nowhere else is there the wide variety of picturesque coral formations, the countless different kinds of fish, ranging from the colorful grouper to barracuda, sharks and sting rays. The crystal-clear water afforded visibility to depths as great as 50 feet. Because there is no direct current running through the waters here, there was not the problem of mud or silt clouding the water to hamper photography.

The appearance of fish swimming through the water is an accepted component of underwater photography; but we found that this piscatorial prop was not always around when we were ready to start shooting. So here again, ingenuity came to the fore, and fish were gathered up by the prop men and held in wire mesh pens until time came to release them for a "walk through" in the scene.

In gathering the fish, it was learned that if the open end of the net was pointed at a coral head the fish would swim into it rather than away toward the open sea. We thus had excellent luck in always keeping the fish within the camera range. Indeed, some of them seemed to like acting in pictures. Many stuck around after a scene was over and were recaptured and used again.

Although I have had previous experience as an underwater cameraman on 20th Century Fox's "The Frogmen" and "Beneath the 12-Mile Reef," I put in more sub-surface time on this Walt Disney production than on the other two combined. This was certainly a most interesting and challenging job, but I'll be happy to settle for one on a "dull," dry sound stage.

It's Up to You -- and You Alone

A Canadian IA man takes a Spartan attitude towards his duty in maintaining projection room equipment.

By FRANK R. BARKEY
IA Local 173, Toronto, Canada

NO DOUBT the statement about to be made will bring down the wrath of the multitude upon my tender ears. However, before you get up on your own particular soap box, read the piece through and then consider all the breaks and stoppages you have had over the past five years in the light of the following:

Twenty years ago I served my apprenticeship in the projection room with a man who was guided by one cardinal rule: *No matter what happens, be it breakdown, stoppage, failure, the projectionist has no excuse. He is responsible.* As an apprentice I was taught to take that rule for granted and I still do.

Now before you throw the biggest film can in the place, let's see how correct such an attitude is. With the exception of houses where the equipment is so ancient and rickety as to present a hopeless situation, I believe that the projectionist should be able to prevent breakdowns during showtime.

Where Trouble Starts

In the modern projection room there is quite a bit of equipment that can, and does, develop aches, pains and ulcers. It all looks pretty complicated, taken as a whole, but it can be broken down into four main groups which I choose to term the heavy electrical, light electrical, mechanical, and optical groups.

The heavy electrical group includes arc lamps, generators, rectifiers, switch panels, motors and other gear drawing heavy currents.

The light-weight electrical group includes amplifiers, power supplies, photocell circuits, pre-amplifiers, exciter units and other equipment drawing relatively light current.

The mechanical group includes projector heads, drives, sound heads, film rewinds, curtain controls.

The optical group is somewhat miscellaneous and includes film, lenses, screen, lamp mirrors, and condensers. Optical sound components are not included in this group but are included in the light electrical group, being part of the overall sound system. Of course some of these items might be classed in more than one group, but for maintenance and repair purposes the classifications will serve.

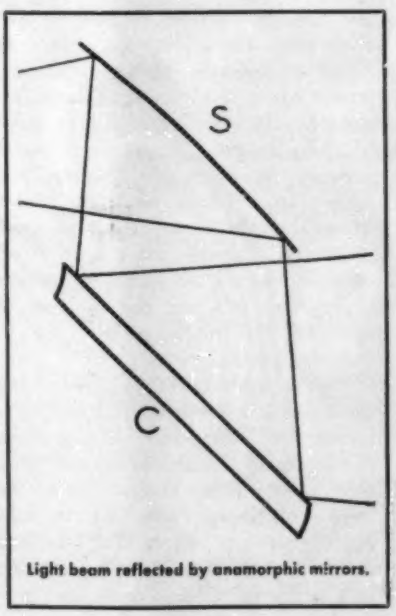
Taking the heavy electrical group first, what can go wrong? What can happen to stop your show? Well, fuses can blow; brushes can wear out; switches can fail; tungar bulbs can quit; bearings can heat and seize; electrical connections can break or loosen or oxidize; resistances can burn out; a lot of things can happen. Except for blown fuses however, every one of the foregoing troubles NEED NEVER HAVE HAPPENED. A fuse can blow through no fault of yours but do you have a replacement beside every fuse holder? If not, why not?

Worn brushes should never be allowed to reach the stage where they fail to make good contact and cause faulty operation. How long is it since you checked your generator bearings for wear? How hot does it run? A general guide to operating temperature of a motor or generator is simply to feel it. If the temperature is within safe limits you should be able to hold the palm of your hand against the casing and keep it there. It may be a bit uncomfortable in some cases but the metal should not be hot enough to force you to take your hand away. If it does, start looking. If you have

(Continued on page 29)

Dutch Use Mirrors to "Unsqueeze" Anamorphic Prints

After the introduction of prismatic as well as cylindrical types of anamorphic lens attachments, most projectionists probably felt that the limit had been reached in the development of optical systems for the "unsqueezing" of compressed anamorphic prints. That, however, is not the case. A third type of anamorphic device has been developed in Holland, according to the trade magazine, *Ideal Kinema*, of London. This anamorphic attachment works with mirrors and without cylindrical lenses or prisms.



Light beam reflected by anamorphic mirrors.

As illustrated in the accompanying sketch, the anamorphic mirrors function as follows: The upper mirror (S) condenses and reflects the projection beam from the regular projection lens onto a curved mirror (C) which expands the beam horizontally when it re-directs the beam toward the screen. The principle of the action is simple to understand because it is exactly the same as the action of the familiar "crazy mirrors" at an amusement park.

It has been claimed for the mirror anamorphic system that the mirrors can be adjusted in such a way as to counteract at least partially the distortion caused by a curved screen. Also, the mirrors are surface silvered and, therefore, are said not to create chromatic aberrations since the light beam does not pass through any other glass surface after leaving the projection lens.

Distribution – the Great Octopi?

Exhibition pays all the bills of the motion picture industry, thus its welfare is the concern of all of us, not the least of whom is Labor. Whether you agree or disagree with the appended provocative statement by an exhibitor leader (and IP agrees) it is "must" reading for all branches of the industry. iP presents:

WALTER READE, Jr.
President, Theatre Owners of America

LITTLE or nothing has occurred by way of liaison between the two great creative parts of our industry—production and exhibition. You, working in production, certainly make the lion's contribution to every motion picture. You make the initial and important investment, not only in a monetary sense, but in the writing, directing, cinematography, acting, managing—and finally, in the editing of a motion picture.

Distribution, the third branch of our industry, constituting the great octopi, has grown fat on your creative genius and on our tremendous investments and showmanship.

It is true and unfortunate that the *self-perpetuating* heads of distribution, at their whim, have the power to turn on or off the faucet of production, and that they are able to and *do* control the law of supply and demand. This is a dangerous power—and it has been used recklessly!

Inordinate Distribution "Take"

Distribution has adopted a policy of releasing fewer and fewer films at higher and higher rentals so that our position today is precarious. Exhibition is unable properly to use its talent and its showmanship to exploit and to sell the fine films which you create. Distribution exacts 30 to 35% of the *total national gross box-office receipts* derived from these same fine films.

Distribution as such, and when it acts in its capacity as *producer*, controls *when* pictures are to be released, *how* they are to be released, and *how many* are to be released. It also stipulates exploitation procedures, advertising budgets, types of bookings, and film rentals. Finally, it controls *what* you folks are to earn and *when* you are to earn it.

$4000 Weekly Salary for an Individual!

From the high percentage taken by distribution most distribution heads, bureaucratic executives, attorneys, and others, take excessive and completely disproportionate salaries—in one instance an all-time high of $4,000 a week for *an individual!* Many of these people know little about the production of motion pictures and less about the running of motion picture theatres; yet they draw larger and larger salaries and have stronger and stronger retirement plans—while you and the motion picture theatre owners of this country are less secure than ever before.

And do you know that millions of dollars are spent by distribution each year in judgments, verdicts, settlements and in the expenses incident thereto? And that there are pending more tha 200 anti-trust suits seeking damages of over $500 *millions?* And that the exhibitors of this country foot these bills each year by way of increased film rental?

This is in great measure an unwarranted expenditure of money occasioned by the archaic and short-view methods of doing business now being employed by distribution.

Film Salesmen Wraith-Like Figures

These executives might say that without distribution of a kind the industry could not exist. This, of course, is partially true. But is it really *salesmen* that we need? I have not been *sold* motion pictures in a decade. Rather, I have to plead *to buy* them.

Shipping—yes! But it is available elsewhere for a small portion of the cost allocated by distribution. Prints—no! The cost of prints is deducted *before* profits and *after* distribution costs. Advertising and publicity—no! These are also deducted before profits. Executives—yes! And they have plenty of those in plush offices!

These unsatisfactory conditions are undemocratic, economically unsound, and impractical.

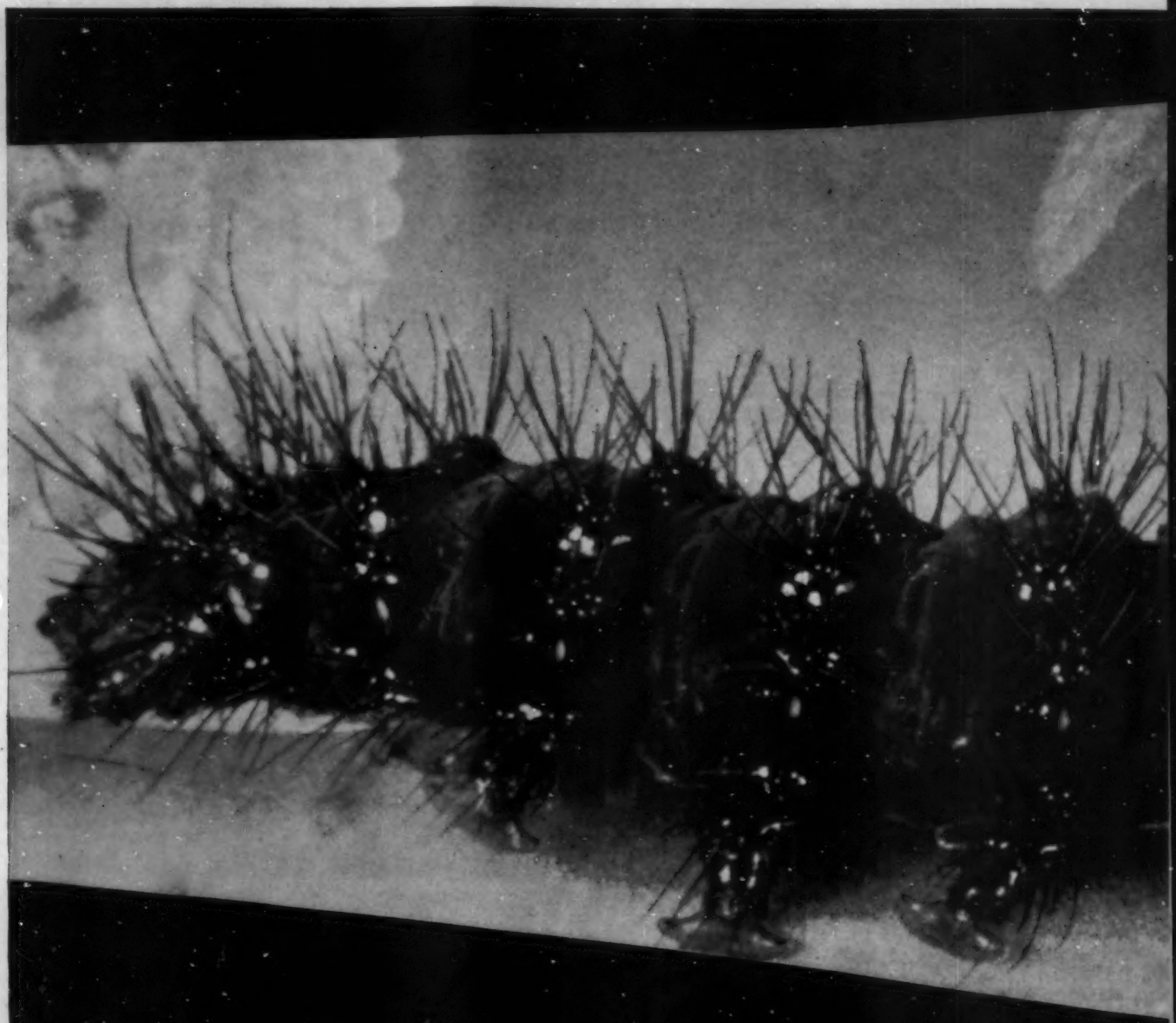
The Soundless Halls of Hollywood

Walking through the long halls of major production plants in this film capital (Hollywood) we find little hum of activity. In many instances there is nothing but uninterrupted silence. Why? There has never been a greater need for more better films on the theatre screens of America. Why has it been necessary for many of you to turn to the production of low-budgeted, unimaginative Tv films? Why has it been necessary for you to raise your voice and object to the production of films in other lands?

This present system, if it were to continue, would mean less and less work for you and a continued shortage of supply for theatres—a devastating situation! This is not a matter of the customary workings of the laws of supply and demand with completed films finding their own level on their merits. It is, rather, the calculated plan of a few companies to force their desires and designs on all of us.

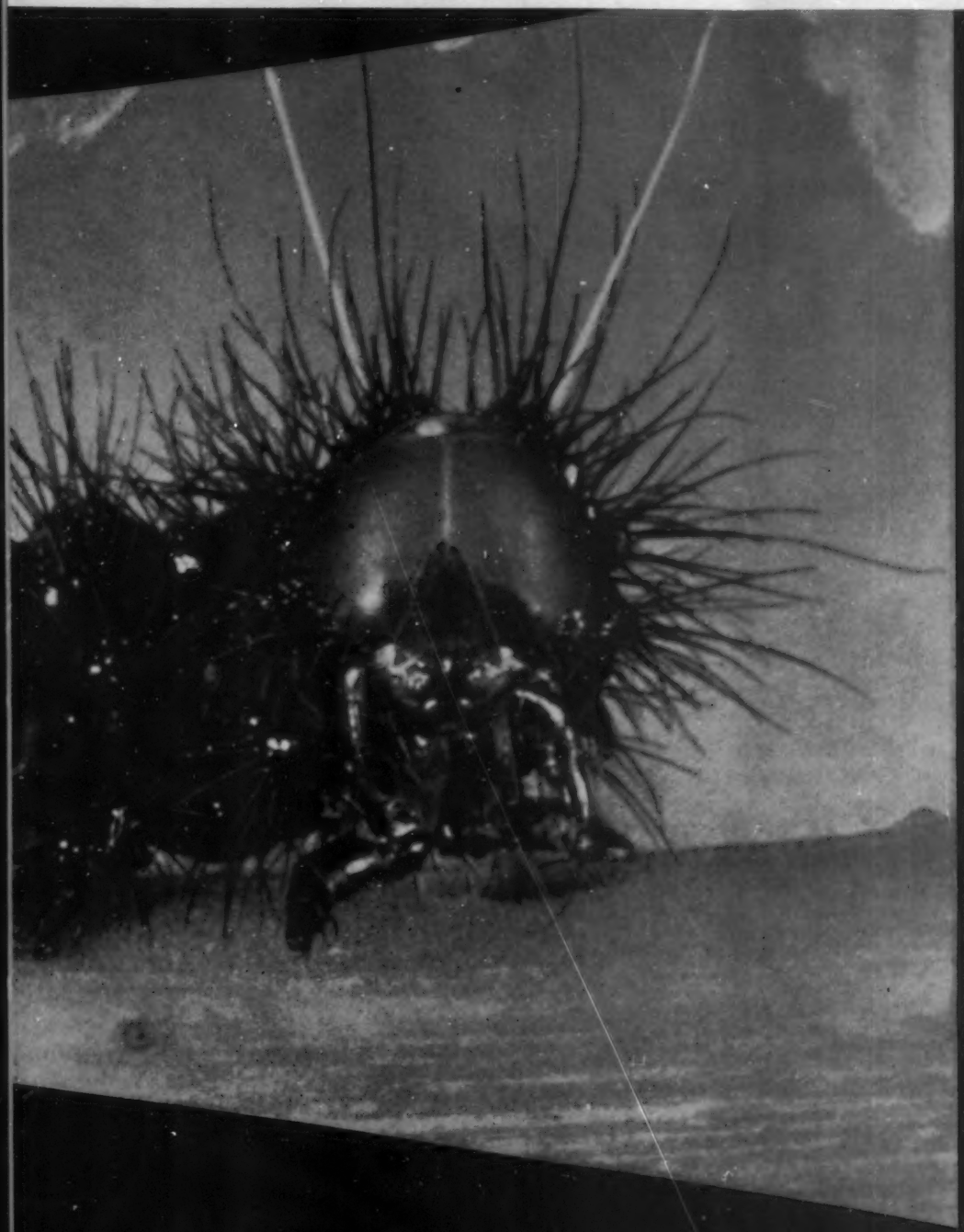
I have read on my own, and have been told by these few bright, old men (all of whom are economically secure and many of whom have fulfilled their contribution to this industry many years ago) that only in the

(Continued on page 28)



Out of this world . . .

New, exciting wide-screen entertainment! Thrills! Thrills! Large things made even larger! The barely visible made man-size and more! Entertainment that fills eye and mind. That's today's motion picture—a new world of advanced production, processing and projection with a world of new problems. Today many of these problems are being solved in co-operation with the Eastman Technical Service for Motion Picture Film. Branches located at strategic centers. Inquiries are invited.



Address: Motion Picture Film Department
EASTMAN KODAK COMPANY, Rochester 4, N.Y.

East Coast Division
342 Madison Avenue, New York 17, N. Y.
Midwest Division
137 North Wabash Avenue, Chicago 2, Illinois
West Coast Division
6706 Santa Monica Blvd., Hollywood 38, California

IN THE SPOTLIGHT

SO YOU'RE GOOD — EH?

Henry Bowyer, IA Local 173, at 80 years of age still is on the job at the Palace Theatre, Toronto, Canada.

SEVERAL changes governing rulings on projection room personnel in motion picture theatres in the state of Massachusetts, were proposed at a recent open hearing held in Boston. For the past year New England exhibitor associations have been waging a vigorous campaign against the established two-man shift in projection rooms, basing their claims for a reduction in projection room manpower on the present-day widespread use of acetate or so-called "safety" film.

The proposed changes now being considered by the commissioner of public safety, Otis M. Whitney, affect section 48, paragraphs 2 and 9 of the Department of Public Safety's rules and regulations governing equipment used in the exhibition of motion pictures. Following is a comparison between the existing rules and the proposals:

Present Law

PARAGRAPH 2 — When more than one cinemotograph or similar apparatus involving the use of a combustible film more than ten inches in length is used for the continuous exhibition of motion pictures, there shall be two licensed operators in attendance in the booth or enclosure. When only one licensed operator is in attendance it will be necessary to "black-out" during the process of changing over. While exhibiting motion pictures the operator shall devote his entire time and attention to that work, and shall not leave the operating side of the machine while it is in motion.

Proposal

In the exhibition of motion pictures no nitrate film shall be used. All film used shall be acetate film known as safety film. Every motion picture machine shall be equipped with a Dowser handle and control switch operated from either side of the machine.

While exhibiting motion pictures, the operator shall devote his entire time and attention to that work. In any theater where the equipment in the projection booth meets these requirements, and is approved by an inspector, only one operator will be required, otherwise two operators shall be in attendance during the exhibition of motion pictures.

Present Law

PARAGRAPH 9 — Not more than two thousand feet of film shall be wound on any one reel. The overloading of reels is prohibited.

Proposal

Not more than 5,000 feet of film shall be wound on any one reel. The overloading of reels is prohibited.

Walter R. Donovan, counsel for District No. 3, comprising IA Locals in New England, spoke in opposition to the proposed changes, pointing out that the two-man shift was necessary to prevent panic and stampeding in the audience should a fire break out in the projection room. False alarms, too, are a great source of danger and can create serious injury, said Donovan. Speaking against the proposed changes were the following IA men: Walter F. Diehl, Boston Local 182; Sidney Le Bow, Lowell Local 546; Jack Kano, Lynn Local 245; R. Lamphier, Brockton Local 437, and L. Normandan, New Bedford Local 334.

An official ruling on the proposed changes is expected shortly.

• "Open house" at IA conventions has become a tradition with National Carbon Company representatives, and

VANCOUVER LOCAL CELEBRATES ITS 40TH ANNIVERSARY

A record-breaking attendance marked the dinner-dance tendered recently by Local 348 at the Flame Country Club, Vancouver, B. C., in observance of the Local's 40th anniversary. IA Vice-President Orin M. Jacobson presented life membership cards to charter members W. E. McCarney, J. Lowdon, J. H. Leslie, and H. C. Roddan. 40-year membership cards were awarded to W. Tenney, R. P. Dauphinee, and J. H. Lucas. Shown above are, left to right: T. Aisbury, president Trades and Labor Council; W. Tenney, Gordon Wismer, former attorney general; J. Lowdon, O. M. Jacobson, J. H. Leslie, R. J. Gervin, secretary-treasurer, Vancouver Trades and Labor Council; W. E. McCartney, W. A. McCartney, president, Local 348, and R. P. Dauphinee.

the recent Cincinnati meet was no exception. As usual, at such affairs, the NCC headquarters was a beehive of activity the entire week of the convention. All visitors were cordially received by the NCC men who outdid themselves in making their guests welcome.

William C. Kunzmann was back at his old stand in charge of arrangements, ably assisted by a crew of NCC stalwarts, namely: V. J. Nolan, C. J. Chapman, J. R. ohnstone, E. R. Geib, Dr. W. W. Lozier, Paul Ries, J. C. Naughton, G. H. Mayer, Jr., F. C. Stovenour, C. E. Heppberger, and R. W. Spafford.

Incidentally, Bill Kunzmann celebrated his 69th birthday that week and was the recipient of many congratulatory messages — to which we add our own best wishes for many, many happy returns of the day.

• The 10th District (New York State) presented President Walsh with a check for $3000 as a contribution to the Will Rogers Memorial Hospital.

• We should like to extend our thanks to Earle Wagner, co-chairman of the convention committee, and to his assistants, for their very kind cooperation in the distribution of IP's Convention Edition to the delegates at he Music Hall. A copy of this special issue was placed on the table in front of each delegate's seat.

• John C. Pfeil, Local 561, Johnstown, Penna., was re-elected for a two-year term as a trustee of Johnstown's Central Labor Union.

• St. Louis Local 143 recently concluded negotiations for a two-year contract to March 15 last, with the owners of eight drive-in theatres. The agreement covers provision for the two-man projection room shift and provides for the continuance of the basic pay scale of $2.70 per hour, per man, for the first year of the contract, and $2.77 per hour, per man, for the second year. A feature of the contract is the employers contribution of 5% of the projectionists' basic wage to a pension or welfare fund for the members of the Local.

• An even split in the decision of the Michigan supreme court in the "vassalage" case brought against Detroit Local 199 by Louis Havens, member of Local 738, Allegan, Mich., who worked for several years as a Local 199 permit man, sustained the decision of circuit Judge Thomas Maher who ruled to dismiss the original bill of complaint. Haven filed suit against the Detroit Local back in December 1948, claiming that he was refused full membership although he paid the regular initiation fee.

• In a report to the AF of L executive council, William F. Schnitzler, AF of L secretary-treasurer, declared that the Federation membership reached the all-time high of 10,200,000 as of the end of June last.

• Morris Rotker, member of New York Local 306 and past president of the 25-30 Club of New York, has just celebrated his 40th wedding anniversary. Fruition: two boys and two girls, all married, and seven grandchildren. Morris is presently armweary from handing out diplomas in his capacity as secretary of Local School Board 19, Bronx, N. Y.

HIGHLIGHTS OF THE IA 42nd BIENNIAL CONVENTION

Earle W. Wagner, president of Cincinnati Local 327, is shown opening the IA Convention in his capacity as temporary chairman.

•

John A. Shuff, business representative of Akron, Ohio, Local 364, is greeted by his son, Robert, also of L. 364, following the election of the former as IA 8th Vice-President.

•

William F. Canavan, well-remembered ex-president of the IA, is greeted by President Richard F. Walsh on the occasion of the installation of newly-elected officers of the IA.

•

President Walsh presents the Convention gavel to William Nagengast, delegate from Local 640, Nassau County, N. Y., following the traditional "lucky-number" procedure.

IATSE 42nd Biennial Convention

AN OVERWHELMING majority of delegates to the recent IA 42nd biennial convention voted to retain IA President Richard F. Walsh and all other incumbents in office. Re-elected by an almost 2 to 1 vote, Walsh polled 708 votes against 408 for his opponent, Roy M. Brewer, who resigned as IA West Coast Representative about a year ago. The same margin marked the re-elections of Harland Holmden, General secretary-treasurer, nine vice-presidents, three trustees, and two delegates to the AF of L conventions. William F. Canavan, former International president, installed the officers.

The convention was held at the Music Hall in Cincinnati the week beginning August 9. Earle W. Wagner, president of Cincinnati Projectionists Local 327, officially opened the meeting, later turning the gavel over to President Walsh.

In his report to the convention delegates, President Walsh stated that there are now more IA members employed in the television field, including the making of Tv films, than that of any other union covering production craftsmen. He issued a warning to jurisdictional rival unions that any raids upon the IA would be retaliated in kind.

President Richard F. Walsh, IATSE

Pension — Welfare Progress

Walsh enumerated the progress of IA Locals in negotiating pension and welfare plans. He reminded the delegates that at the 1946 convention a study which might have lead to an over-all plan was rejected, but he stated that he stood ready to move in that direction if the delegates so decided.

"At the time of our last convention," declared Walsh, "only the largest IA locals in New York and Chicago had negotiated employer contributions for pension plans, while contributions covering health and life insurance had been negotiated for members of our Hollywood studio locals and for San Francisco Projectionists Local 162.

"By now two encouraging additional steps have been taken. Welfare-plan contributions for the first time have been provided in the contracts of a substantial number of small locals, and pension-plan contributions have reached a significant scale by being written into our new Hollywood Studio Basic Agreement.

Hollywood Arrangement

"The Hollywood arrangement, effective Oct. 26, 1953, calls for the employers to set aside two cents per working hour for pension purposes. While this amount is insufficient to put actual pensions into effect, it does mark a substantial beginning and commits management to a course from which it cannot very well turn back. The agreement expires on Oct. 24 of next year, and increased contributions will be sought in the new negotiations.

". . . Quite recently a five per cent health and welfare contribution was obtained by Projectionist Local 307, Philadelphia, Penna., in negotiations with the Stanley-Warner Company and several independent theatre owners. A similar agreement has been worked out by Projectionist Local 154, Seattle, Washington. And the payments into the pension fund of Projectionist Local 306, New York City, have been increased from 5% to 7%.

"Extension of welfare plans beyond the big cities occurred first in northern California, where 12 locals have obtained benefits similar to those

President Walsh on LLPE

"Labor's League for Political Education still suffers from inadequate financial support. Although in this respect we of the Alliance do better than most other unions, we still are not doing enough. Each year membership books are sent to our local unions from LLPE headquarters in Washington. The dues are only a dollar per member per year, payable through our General Office, which forwards them to Washington. Once every so often a book comes back from a local secretary, who explains, 'We cannot interest our members in this sort of thing.' Wage increases, yes. Jobs and job security, yes. All members are interested in those. Yet they cannot seem to grasp the very real part legislation plays in making jobs and raises possible. As leaders of your locals, I urge you to keep trying to establish this connection. When enough of us succeed in doing that, our investment of time and energy in Labor's League will pay off for every workingman's family in America."

ELECTED IA OFFICIALS

President
RICHARD F. WALSH

Secretary-Treasurer
HARLAND HOLMDEN

1st Vice-President
JAMES J. BRENNAN (New York)

2nd Vice-President
CARL G. COOPER (Los Angeles)

3rd Vice-President
HARRY J. ABBOTT (Philadelphia)

4th Vice-President
ORIN M. JACOBSON (Tacoma)

5th Vice-President
HUGH J. SEDGWICK (Hamilton, Ont.)

6th Vice-President
ALBERT S. JOHNSTONE (New Orleans)

7th Vice-President
WILLIAM DONNELLY (Minneapolis)

8th Vice-President
JOHN A. SHUFF (Akron, Ohio)

9th Vice-President
MISS LOUISE WRIGHT (Dallas)

Trustees
WILLIAM C. SCANLAN (Lynn, Mass.)
R. E. MORRIS (Mobile, Ala.)
GEORGE W. BRAYFIELD (Denver, Colo.)

AF of L Delegates
THOMAS V. GREEN (Newark, N. J.)
JAMES McNABB (Seattle, Wash.)

Delegate, Trades and Labor Congress (Canada)
H. W. LACKEY (Calgary, Alta.)

IA President Richard F. Walsh, being sworn in office by William F. Canavan, well-remembered ex-president of the International Alliance. Canavan presided at the installation ceremonies of the elected officers.

negotiated in San Francisco. Assistance was given by Special Representative Steve B. Newman, who encouraged the locals to unify their demands, which he then presented at a number of meetings. The settlement calls for a contribution of five cents per hour (up to a limit of $810 per week for each local). This meets the insurance company's premium and takes care of office expenses.

"More recently several locals in the states of Washington and Oregon have reached similar agreements with their employers.

"First welfare contributions reported from Canada were negotiated this spring by Projectionist Local 348, Vancouver, B. C.

"All in all, the Pension and Welfare pattern seems to be well established—so that we can now look forward to more and more plans as time goes on."

President Walsh also recommended that the controversy over foreign film production be turned over to the Special Committee for further study.

The convention defeated a resolution which would have barred members from holding office in an IA Local for five years after any period of employment in the executive branch of management.

A move to use voting machines in the election of officers at the Cincinnati convention was defeated because of the difficulty in obtaining them in time for the election. However, the delegates went on record as favoring the use of such machines in future IA elections.

Among the many prominent civic and labor personalities who addressed the gathering were James L. McDevitt, national director of Labor's League for Political Education; Carl Rich, former mayor of Cincinnati; Robert Sidell, president of Cincinnati Local 1, American Federation of Musicians, and Tom O'Brien, M. P. and general secretary of the National Association of Theatrical and Kine Employees of England.

Lester Isaac, managing director of Cinerama, expressed his gratitude to the IA men employed in the 13 Cinerama theatres throughout the country for their fine work in handling this show.

Merle Chamberlin, projection supervisor at the M-G-M Studios on the West Coast, in addressing the delegates discussed the so-called "new look" in motion pictures and took issue with the trade press for much misinformation on technical matters published in many of the exhibitor papers. He also spoke about the increasing number of damaged prints caused by faulty projection equipment, and urged the projectionists to campaign against worn-out and defective equipment. He recommended that the craft keep itself abreast of the latest developments in the industry by subscribing to such informative journals as INTERNATIONAL PROJECTIONIST.

The Cincinnati host Locals were warmly praised by the delegates for their splendid handling of the strenuous task of organization and arrangements for the convention.

President Walsh's Remarks on "Right-to-Work" Laws

"Man's return to the primitive has reached a sad extreme in 17 American states which have adopted a law allegedly guaranteeing the 'right to work'. This means the right to work without ever joining a union. Whereas the Taft-Hartley Act forbids the closed shop, these statutes go further and outlaw the union shop as well. Thus, the employers are free to fill up their payrolls with non-union people and then to cut wages to their hearts' content. The strength which employes can gain only through collective bargaining is seriously jeopardized.

"Prior to our last convention, this vicious law was on the books in Arizona, Arkansas, Florida, Georgia, Iowa, Nebraska, North Carolina, North Dakota, South Dakota, Tennessee, Texas and Virginia. Since the last convention, it has been adopted also in Alabama, Mississippi, Nevada, South Carolina and Louisiana.

"Fortunately, our good relations with most of the exhibitors in these states have kept them from using the right-to-work laws against us. But there have been some costly exceptions, and there undoubtedly will be more as time goes on."

Movie Patronage Up 5%

A steady rise in motion picture attendance throughout the country was reported this month by an industry source in New York City which asserted that film patronage is now running about 5% ahead of the same time last year. The trend is expected to continue slowly upward.

The principal reason advanced for the heavier attendance is the improvement shown in the quality of pictures released this year. It is felt that these better pictures enticed from their homes people who had lost the movie habit. It was also noted that merely average films benefited from the generally increased interest in the theatre.

Lens-Screen Chart Offered

A pocket-size chart which contains the formulas necessary for calculating any lens or screen dimension for CinemaScope or other wide-screen projection is available free from Projection Optics, 330 Lyell Ave., Rochester 6, N. Y., or through its dealers.

Wartime Uses Spurred Growth of 16-mm field

While the theatrical motion picture exhibition business has been fighting to hold its own against Tv competition during the past few years, another branch of the film industry has been growing by leaps and bounds. The record attendance at the 11th annual convention of the National Audio-Visual Association, held this month in Chicago, indicates that a large and prosperous section of the film industry is growing up around the production of 16-mm motion pictures, as well as film strips, lantern slides, and other visual aids. This is a field that projectionists should keep an eye on because it is a potential source of part-time and even full-time employment.

The recent growth of the 16-mm and allied non-theatrical film field is attributed to many factors but chiefly to the effective use the armed forces made of 16-mm films for training, documentaries, and for the entertainment of servicemen during the second World War. Military use of motion pictures opened the eyes of educators, and industrial and religious leaders to the fact that films were an extremely forceful and economical tool for communication, information and education.

Non-Theatrical Biz Soars

It is only necessary to examine the following figures on the 16-mm business to get an idea of its growth:

More than 2,300 new educational and informational films are released each year for a wide and varied audience.

An estimated 65,000 churches in the United States are equipped with 16-mm projectors to show religious films.

More than 80% of high schools in the country own one or more 16-mm sound projectors.

An educational film can be purchased and circulated by a school system at a fraction of the per-pupil cost of circulating a book. A 10% increase in school audio-visual budgets is expected for the 1954-55 school year.

A few years ago, makes and models of audio-visual equipment could be counted on the fingers. Now there are more than 400 models of audio-visual equipment in current sale and manufacture. A recent directory lists 43 models of 16-mm sound projectors, 77 tape recorders, 48 opaque and overhead projectors, 44 filmstrip projectors and a host of other items.

Only a short time ago non-theatrical films of any merit were scarce, and new production for educational and religious use amounted to only a few dozen subjects a year. Now, in contrast, one filmstrip producer turns out a new title every three working days throughout the year.

C. J. Chapman Heads Industrial Products for National Carbon Co.

C. J. Chapman has been named as General Sales Manager of Industrial Products for National Carbon Co. Headquartering in the general offices in N. Y. City, Chapman will direct sales activities on the company's Carbon and graphite electrode, projector carbons, carbon brushes, signal cells, and chemical and metallurgical carbon products.

Chapman received his B.S. civil engineering in 1933 from Dartmouth College. He joined National Carbon Co. in 1936

C. J. Chapman, General Sales Manager, National Carbon Co., Industrial Products

as a salesman in the Eastern District, being transferred in 1937 to the Pittsburgh District as a salesman. In 1944 he was made Assistant Manager, Atlanta Division, and in 1945 Assistant Manager, New York Division. He returned to Atlanta as Manager of that Division in 1948; and was made Chicago District Sales Manager in 1951, the position that he has held until his present appointment.

Drive-in Bills Live Wrestlers

An enterprising Cleveland drive-in operator doesn't believe in giving the Tv people any respite. In addition to a double bill, he presents a favorite type of Tv program as a live act every Thursday evening. Three wrestling matches take place on a platform in front of the screen. An estimated 5,000 patrons attended one recent Thursday program.

FOR AULD LANG SYNE: This photograph, taken in London, Ont., Canada in 1919, pictures many old-time IA stalwarts—not one of whom is alive today. To the first 5 readers who identify the occasion and at least 10 of the personnel, IP will award a free 1-year subscription.

PERSONAL NOTES

EUGENE S. GREGG has been elected president of the Westrex Corp., succeeding Frederick W. Bierwirth who retires this month under the company's age retirement rule. Mr. Gregg, since 1941, has been vice president and general manager of the corporation, a

Eugene S. Gregg, newly elected president of Westrex Corp.

Western Electric subsidiary which handles the distribution and servicing of motion picture sound equipment throughout the world except for the United States and Canada.

Mr. Gregg was born in Byran, Texas and was graduated from Austin College in 1913. During World War I, he was a captain in the shipping section of the general staff of the Army. In 1926 he joined Westrex as a statistician and a year later was made chief statistician. In 1931 he became general manager for the eastern division of Electrical Research Products, Inc., a former subsidiary of Westrex.

WILLIAM E. CHEESMAN has been appointed field sales representative for RCA theatre products in the Eastern and Northeastern regions, it was announced this month by J. F. O'Brien, theatre equipment sales manager. Mr. Cheesman succeeds Bernard Sholtz, one of the industry's pioneer field sales representatives, who has retired after serving RCA in the same territory for more than a quarter of a century.

Product manager for RCA theatre carpet and chairs for the last three years, Mr. Cheesman now assumes responsibility for sales of RCA theatre sound systems, projectors, speakers and screens in the Eastern-Northeastern region. This area includes such major theatre centers as New York, Philadelphia, Washington, Boston, Pittsburgh, and Buffalo. Prior to 1951, he was for six years supervisor of order service for RCA theatre equipment. He has been with RCA since 1930.

Well known to projectionists throughout the Eastern seaboard, Mr. Sholtz joined RCA in March, 1929, as field salesman for RCA photophone equipment.

More and more Drive-Ins are demanding these fine lenses. The Super Snaplites are guaranteed to give you Sharper Pictures, More Light on the Screen, Greater Contrast, and Greater Definition...and this under the most trying outdoor operating conditions. Actually 7 out of 10 new Drive-Ins install Super Snaplite Lenses...and more and more established Drive-Ins are turning to Super Snaplites. Ask for Bulletin No. 212, it gives you complete information on these lenses.

KOLLMORGEN Optical CORPORATION

Plant: 347 King St., Northampton, Massachusetts

New York Office: 30 Church Street, New York 7, N. Y.

Projection Optics Making Variable Anamorphic Lens

A new variable anamorphic lens, claimed to embody a number of improvements over prismatic "squeeze" lenses previously marketed, is now in production at the Projection Optics Co., Inc., Rochester, N. Y. This lens is designed to fit a 4-inch diameter projection objective lens in addition to the smaller size. The price is $750 per pair.

At a demonstration in New York this month, Fred Aufhauser, president of Projection Optics, stressed the following two features of the lens, which is known as the Hilux VAL (variable anamorphic lens):

First, the two variable prisms, which perform the work in this type of lens, are controlled by separate knobs, permitting the projectionist to adjust the prisms in such a way that the screen is completely filled even when switching from CinemaScope to the slightly offside CinemaScope aperture.

Correcting Lens Added

Secondly, in addition to the two prisms, the Hilux VAL has an additional correcting element mounted in front of the lens to perform a double function. It sharpens the image and also seals the front of the lens so that dirt will not lodge on the surfaces of the prisms. This correcting lens is supplied in six different strengths to accommodate various projection throws. The rear of the lens is not sealed but it is screwed to the front of the regular projection objective when in use, and a threaded metal cap is provided to seal the rear when the lens is stored away.

Hilux prismatic anamorphic lens

The Hilux "Squeeze" lens is set in a cylindrical cast aluminum barrel, which is said by the company to be the most efficient shape for transmitting the maximum amount of light and for exact optical adjustment with the projection objective. Other prismatic anamorphics usually have a square casing. This lens has a top magnifying power of 2 to 1, enabling it to deliver an aspect ratio anywhere from 1.33 to 1 up to 2.66 to 1 when a print "squeezed" to the desired size is available.

A strong demand is expected for the Hilux prismatic lens because it can handle both CinemaScope prints and the new VistaVision "squeeze" prints.

General Precision Profits Up

Consolidated net profit of General Precision Equipment Corp., parent company of National Theatre Supply, International Projector Corp. and other theatre equipment manufacturers, was $2,541,652 for the six months ended June 30. This compares with a profit of $1,469,066 for the same period last year.

Net sales for the same six month's period ending June 30 were $54,305,196 compared with $41,102,567 for the year before.

WILLIAM P. RAOUL

William P. Raoul, former General secretary-treasurer of the IA, died last month at the Georgia Baptist Hospital, Atlanta, Ga., following surgery.

A native of Atlanta, William Raoul became a pioneer projectionist while still a student at Georgia Tech, and in 1909 he was appointed to the city's first board of examiners of motion picture projectionists. He joined Atlanta Stagehands Local 41 in 1910. In 1911 he helped establish Projectionists Local 225, serving as its first secretary and then as its president for many years.

In 1918 Raoul was appointed an IA representative, spending most of his time in building up the organization throughout the South. He was appointed assistant IA president when Richard F. Walsh took over the presidency in 1941, and in 1945 he was elected General secretary-treasurer, a post he held until ill halth forced his retirement in August 1953.

He served as president of the Atlanta Federation of Trades, and as president of the Georgia Federation of Labor. He was a charter member of the Atlanta Variety Club and a 32nd degree Scottish Rite Mason and a Shriner.

Altec's current installation rate accounts for 75% of total stereophonic sound sales!

Broadway or Main Street, theatre owners know Altec's engineering skill and know-how assure perfect installation, sure service.

That's why Brandt's GLOBE, Broadway, New York, (pop. 8,000,000) and the OPERA HOUSE, Lebanon, New Hampshire, (pop. 4,614) signed Altec stereophonic installation and service contracts!

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ACE REEL-END ALARMS
The only ball-bearing reel-end alarms
Never fails—all sizes from 16" to 26"
Now $18.00
See your dealer or write to
ACE ELECTRIC MFG. COMPANY
1458 Shakespeare Avenue
New York 52, N. Y.

864 Theatres in N. Y. Area

Theatres situated in the New York City metropolitan territory total 864, including 821 conventional houses and 43 drive-ins, according to a recent count. The metropolitan territory includes New York City, Long Island, New York State south of Kingston, and New Jersey north of Trenton.

New York City's five boroughs have 436 theatres and two drive-ins. Location of the theatres can be broken down as follows: Manhattan, 160; Brooklyn, 146; Bronx, 68; Queens, 79, and Staten Island, 10.

Theatres in Long Island, outside of Queens total 72, plus eight drive-ins, while there are 93 theatres and 14 drive-ins in the southern part of New York State. Northern New Jersey has 220 theatres and 19 drive-ins.

Color Tv Link to 94 Cities

By the end of the year there will be 40,000 channel miles of transmission facilities equipped to bring color Tv service to 94 cities, American Telephone & Telegraph Co. announced this month. The company is now able to serve 47 cities with color.

Among new cities to be placed on color circuit in the next five months are Buffalo, Des Moines, Indianapolis, Jacksonville, Knoxville, Little Rock, Miami, Norfolk, Richmond, Seattle, Portland, Ore., Portland, Me., Wheeling, Galveston and Phoenix.

C'Scope Slow in Australia

CinemaScope installations are moving slowly in Australia, with only four independent theatres having already installed the medium, with six more slated for near future. Hoyt's Circuit has gone all out, but it must be remembered that this circuit is controlled by 20th-Fox in America. Many Hoyt houses will not have stereophonic sound, at least now.

M-G-M's 12 Aussie houses have converted for C'Scope, but will use the Perspecta sound system. Aussie exhibitors are a bit wary of too rapid a conversion job not only because of the cost factor but because they are attracted by the possibilities of Par's VistaVision process.

Super-Fast Film from Kodak

A new type of negative film that will considerably increase the versatility of the motion picture camera has been marketed by the Eastman Kodak Co. Known as Eastman Tri-X Panchromatic Negative Film, it has twice the speed (sensitivity to light) as the standard Super XX film but just about the same or slightly less graininess.

Ordinarily, the faster the film the more grainy it is, making extra fast film of limited value. The new Tri-X film, however, will permit sharp photography under very difficult lighting conditions. A Tri-X booklet is available from Eastman Kodak.

IA OBITUARIES

CORNELIUS A. HITZERT, 71, member of Stagehands Local 6, St. Louis, Mo., was overcome by the heat and died last month when the temperature reached an all-time high of 115 degrees. Hitzert joined the Local back in 1910 and worked in many of the St. Louis theatres, until he was placed on the disability list in July 1952.

PHILIP SCHARE, member of Detroit Local 199 and projectionist for many years at the Film Exchange, died after a long illness. He is survived by his wife, two children, and three brothers.

WALDON C. MCDONALD, 50, member of St. Louis Local 143, was killed in an automobile accident. He was well known in the entertainment world having worked as a master of ceremonies in various night clubs. He became a member of Local 143 in 1944 and was popular with the membership.

Announcing...

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EPRAD STAR

An economical speaker which outclasses all competitive models. It has a 3½-inch cone . . . and a Fiberglas case with beautiful molded-in colors. Many of EPRAD "Universal's" superb qualities are incorporated in this speaker.

$5.50 Per Speaker

EPRAD UNIVERSAL

The world's most popular replacement speaker. We, along with many operators, feel that it's the best-sounding, most trouble-free, easiest-to-service speaker on the market. It has a Die-Cast Aluminum case and a 4-inch cone. Put a sample speaker in your drive-in and you'll insist on **complete replacement** with EPRAD Universals.

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Want to give your patrons economical Stereophonic sound effects? Then here's the speaker for you. This Fiberglas cased, 2-way speaker is approximately the size and weight of a standard speaker. It mounts on either the rear-view mirror, top of the dash, ash tray, or window.

$11.50 Per Speaker

EPRAD 3-WAY

An owner who recently had this unit installed, claims it gave the finest sound ever heard . . . including standard, optical or stereophonic. He plans to install them in all of his drive-ins. This single Fiberglas case, stereophonic-sound speaker is only slightly larger and heavier than conventional speakers. Sound quality is truly realistic beyond belief because of three, 3½-inch driver units with 1.47 ounce magnets.

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Call Your Favorite Independent Dealer

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The "VOICE OF THE DRIVE-IN"

1206 CHERRY ST. TOLEDO 4, OHIO

DISTRIBUTION — THE GREAT OCTOPI?

(Continued from page 17)

so-called epic or million-dollar-budget pictures is there a future in production and a basis for substantial profit. I say to you now that this is not so. Medium- or low-budgeted pictures, well planned, well exploited have been and will continue to be successful.

Creative Ability the Only Payoff

You may say to me that it is all very well for me to talk this way, but how can we, as individual groups, or as individuals, produce motion pictures and get the finished product delivered to your theatres? It has been done, it is being done, and more of it must be done. Here in this very room is creative talent, the creative genius of our industry. You may need financial support. Bankers and theatre owners are ready, willing and able to back you for the appropriate talent, the proper story and the fresh approach.

Pay no attention to the malicious and untruthful statements by distribution that exhibition plays an unimportant role in the motion picture world. Do you know that exhibitors in the United States have an investment of billions of dollars in their plants as against a far, far smaller investment by all of the production and distribution elements combined? Your contribution, your investment, and your rewards are at stake, too. Should we not work together on a cooperative basis to the end that we may build more securiy and a more prosperous industry?

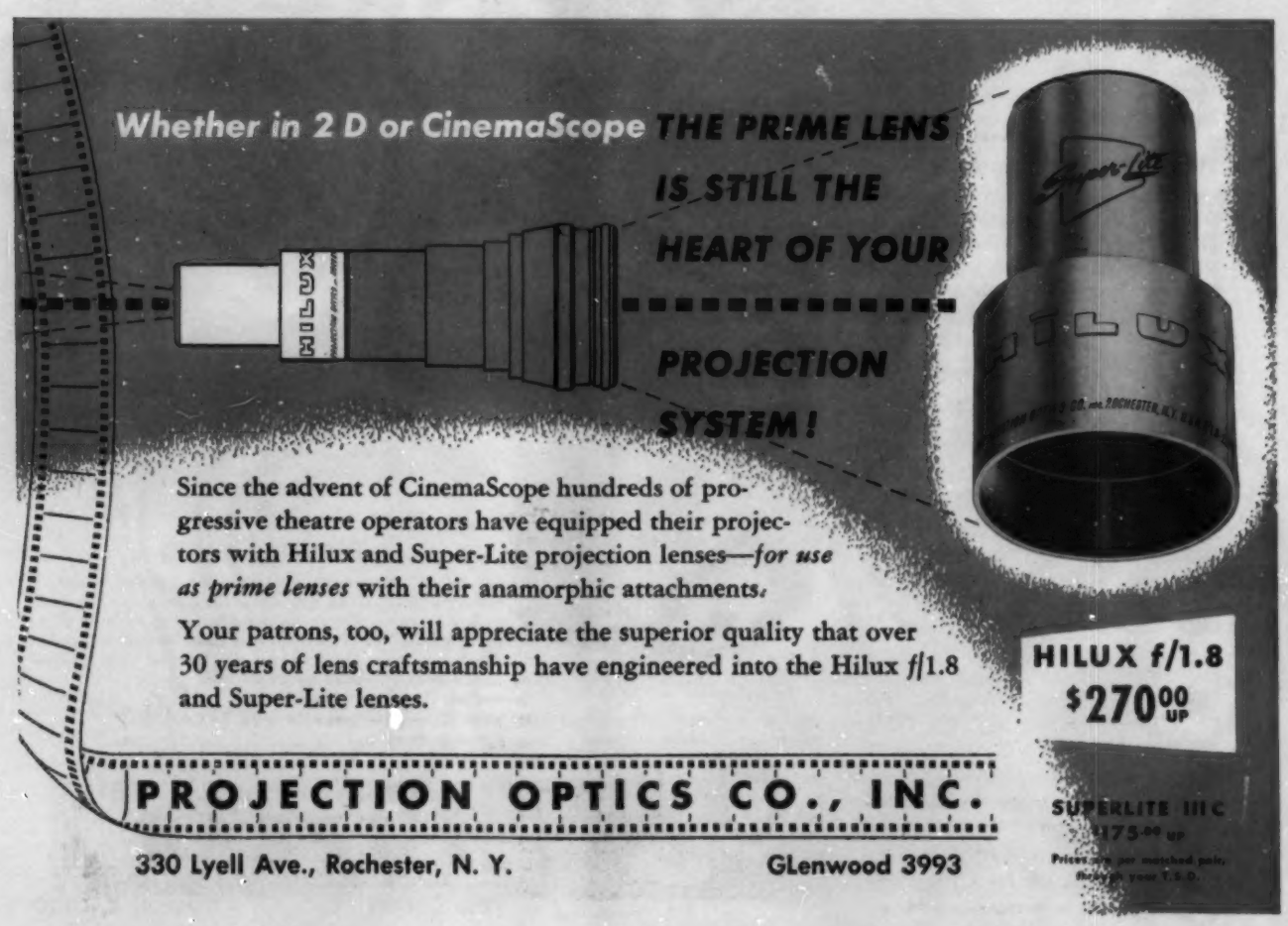
"Phony" Overhead Means Prohibitive Costs

The phony overhead and the prohibitive costs of distribution must be reduced and changed. Existing methods are chaotic and will not do. You have given us new ideas, new thoughts. We, in turn, are daily developing new and better ways of theatre management and of showmanship. It is essential that from this time on there be a positive, strong, well planned, co-operative effort between you and the theatre owners.

If there be some doubt in your minds as to the need as I have stated it concerning our real desire to co-operate, you have but to leave the enchantment of your Hollywood backyard and visit, with me, as I have these many months, the small and the large cities of America, speak with the theatre owner and with the man on the street concerning the place and the prominence that Hollywood-made movies have in the American way of life.

I remind you that the only *direct* tie you have with the box-office line of America is the theatre manager who is at that line 7 days a week, 52 weeks a year. He tells you that the goal of production and distribution must be a steady flow of good product adequate for proper operation of the country's theatres.

★ ★ ★


Whether in 2 D or CinemaScope THE PRIME LENS IS STILL THE HEART OF YOUR PROJECTION SYSTEM!
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Since the advent of CinemaScope hundreds of progressive theatre operators have equipped their projectors with Hilux and Super-Lite projection lenses—*for use as prime lenses* with their anamorphic attachments.
Your patrons, too, will appreciate the superior quality that over 30 years of lens craftsmanship have engineered into the Hilux f/1.8 and Super-Lite lenses.
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GLenwood 3993

IT'S UP TO YOU . . .

(Continued from page 16)

tungar bulb rectifiers, how long is it since you cleaned the contacts? Do the filaments have neat, even coils or do they resemble badly mauled pretzels? How many flies do you suppose you could find if you took the covers off your lamp switches? Your equipment should get a regular, thorough check for warn parts, bad connections, dirt. Voltage readings should be taken regularly and if possible a current reading.

Aid from Serviceman

What we choose to call the light electrical equipment in most cases is serviced by sound engineers. If they do their inspections properly you will have little to worry about. So don't. But do you have a complete set of spare tubes? Do you know the tube lineup in your particular amplifier?

If a filter condenser lets go in the amplifier power supply, do you recognize the resultant effect on your sound? Can you make emergency repairs? Do you know how to use a multimeter? Do you have a pair of earphones in the projection room? Do you know how to make a point test for sound right through the amplifier with these earphones? If not, why not?

The sound engineers may be responsible for keeping your equipment in operating condition but they don't seem to be too helpful when they are 100 miles away. If something goes wrong in the middle of a show you are the Joe who has to get a picture back on the screen—with sound. The golden rule is to learn your own equipment, learn the theory of that equipment, and most important of all, get actual practice in trouble shooting that equipment if at all possible.

Mechanical maintenance should require no comment. Presumably every craftsman makes periodical inspections of his projectors. Proper lubrication and cleanliness are two important points to watch as we all know. But do you know I have seen cases where sprocket shafts have seized solid from lack of oil?

On one memorable occasion I opened a projector for oiling and couldn't find the oil vents for encrusted dirt. A thick layer of grease and dirt had to be scraped off before the machine could be oiled. Except for the gear teeth, every gear and shaft was caked with the stuff. And these machines were in daily use. You can imagine the rest of the equipment.

Projectors Wear Slowly

Drive belts, take up belts, pressure pads and so on will need replacement. Sprocket teeth wear, tension springs gradually weaken, rollers get grooved, screws and bolts loosen up and fall out, a hundred things get out of whack. The insidious part of it all is that these things happen so gradually you don't notice them until you suddenly have to shut down.

Of course, the catcalls and whistles of the morons in an otherwise polite audience helps a lot just at this time. But was the shutdown necessary? No. Are you responsible for the shutdown? Probably. If you had been making regular inspection and adjustments you would have foreseen trouble and prevention might have been applied before it happened.

What I choose to call the optical

...A **NEW** HERTNER POWER UNIT

for

DRIVE-IN and LARGE INDOOR THEATERS

The **HT 135** TransVerteR®

for **135** ampere ARCS

Type HT 135/270 TransVerter for 115 to 135 amperes, 65 to 70 volt high-intensity and spot arcs, and the new 135 lamps.

The *new* HT 135/270 TransVerter answers the need for 115 to 135 ampere arcs for all types of wide screen and 3D pictures requiring more light over a larger area. This latest Hertner TransVerter rounds out our line of dependable power units designed especially for arc lamps. Complete installation includes our Control Panel Type G and the new Dual-type HD 100/140 Rheostat.

For all the details of the many fine features of the new HT 135 TransVerter write for Bulletin No. 3018.

Distributed by National Theatre Supply
In Canada: General Theatre Supply Company

Hertner

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A General Precision Equipment Corporation Subsidiary
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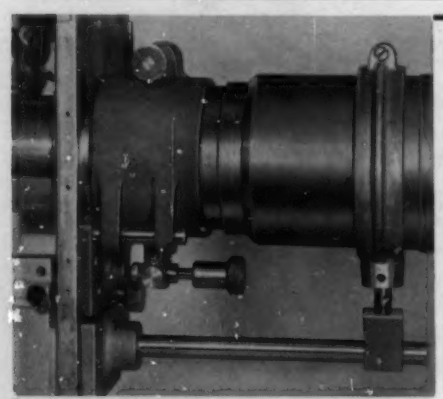
group includes probably the worst offender from the standpoint of shutdowns, that is film. By far the majority of shutdowns are caused through film breaks. Film breaks should never happen. This is one aspect of the projectionist's job where he cannot have the faintest excuse for a dark screen. The film may come from the exchange ready to fall apart at a sneeze but that is still no excuse. It is the projectionist's job to check it and make sure it is in running shape before it is ever placed around a sprocket.

If this involves an unreasonable amount of time and work, throw the film back at the exchange and demand better prints. Scream to high heaven about your bad prints and pretty soon they will make sure you get them in pretty fair condition. This writer on a number of occasions has refused to run prints considered to be in dangerous condition. The exchange had good prints in the theatre before show time. After this happens a few times it is surprising how few poor prints you receive. Believe it or not, on several prints with unavoidable defects, the exchange has written to let me know about it several days in advance. You don't have to be close to the exchange to establish this policy. Our film is shipped 120 miles to us.

The answer to the whole problem is preventative maintenance—not repair. Get the trouble before it starts. Equipment, regularly and systematically inspected will give good service and few breakdowns.



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LETTERS TO THE EDITOR

(Continued from page 13)

78 amps., but you will have to stop cooling off your carbons!

Details of Strong Test

The Strong Super "135" projects to the screen 16,000 lumens *with the shutter running* and anamorphic lens on. Since the 50 x 19½ foot screen used in the test has an area of 975 square feet, the mean intensity of illumination at the screen has a value of 16.4 foot-candles. As side-to-center light-distribution is ordinarily a matter of 65%, illumination at the center of the screen is 19.9 foot-candles. Now, most matte white screens have an average reflectance of about 76% when perforated. The brightness of the center of this screen, illuminated by the Strong lamp *with projector shutter running*, is accordingly 15.2 footlamberts. That's just what we claimed.

Your lamp setup gives very nearly 8,500 lumens at 78 amps *when the shutter is running* and when the anamorphic lens is used. Rest assured that this is a generous estimate. 8,500 lumens is just about the best you can expect to do with water-cooled, non-coated carbons in a simplified H. I. lamp at 78 amps. You are burning current merely to heat water!! You *could* be getting 10,000 lumens *without* those water-jackets!

Screen Light Inadequate

Your 45 x 24½ foot screen has an area of 1,102½ square feet. With 8,500 lumens covering this surface, the mean intensity of illumination is 7.7 foot-candles. With side-to-center distribution of 65%, illumination at the center of your screen is 9.3 foot-candles—damned little, if you ask us. Since an aluminum screen has a reflective value of about 240% opposite the incident optical angle, the brightness at the center is 22.3 foot-lamberts.

At this point you will undoubtedly protest that your center brightness was found to be 45 foot-lamberts by actual

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measurement. Just be patient with us. The rotating projector shutter cuts the light approximately in half; and if you divide 45 by 2, the result is 22.5 foot-lamberts. That's pretty close to our estimate of 22.3 foot-lamberts, don't you think?

Your value of 45 foot-lamberts was measured without the shutter running!

How Light Is Measured

All screen light measurements are made that way because the light-meters used don't work accurately with flickering light. But the Strong people divide their *direct* measurement by 2.

Now suppose that Strong and you swapped lamps. Your lamp (with its water jacket and uncoated carbons) would give only 8.0 foot-lamberts at the center of Strong's white screen. The Strong Super "135" lamp would give 42.2 foot-lamberts at the center of your aluminum screen when the shutter is running, or 84.4 foot-lamberts when the shutter isn't running. Satisfied that we had our facts straight?

No? Well then consider this. At a 45° viewing angle, the reflectivity of an aluminum screen drops to about 36%, resulting in a screen-center brightness *in your theatre* of only 3.3 foot-lamberts. Such an extreme angle has little practical significance in long, narrow theatres; but even at a 35° angle (aluminum-screen reflectivity 60%) center-brightness has a value in your theatre of 5.6 foot-lamberts, considerably below East Coast SMPTE standards. Don't be dazzled by the flood of light that your type of screen throws straight forward like a mirror!

For All Viewing Angles

With a white screen, however, the brightness remains the same from *all* viewing angles; and this is why matte screens are mandatory in wide theatres. To use a white screen in your theatre, having the same size as your present screen, you would certainly need more powerful lamps than your present ones. To mention but two out of several makes, the Strong Super "135" burning 135 amps, and the Peerless Hy-Candescent burning 185 amps, both give 16,000 lumens *with the shutter running.*

That's the way the situation looks from here on the East Coast.

Appreciation

To the editor of IP:

I have renewed my subscription to the *International Projectionist* for a further period of two years. Thank you very much for a magazine that concentrates on giving all the information on the new types of screen presentation and not on the art of selling ice cream. Please note change of address.

L. GOULTER

22 South Bank, Long Ditton
Surrey, England.

Westinghouse Sales Film

Varied motion picture techniques are being utilized by Westinghouse Corp. in a cross-country tour of a new sales show designed to explain the advantages of modernizing electrical equipment. A 21-foot translucent screen, backed by two motion picture projectors, three slide projectors and two speakers is being used. Showings will be in color, with motion picture scenes blending into slides, and *vice versa*, as the change in technique suits the sales story.

Units of the IA are being urged to contact local Westinghouse outlets for the dates of showings.

"G W T W" Still Breaking Records

Reissued and playing Loew's State Theatre, N. Y. City, "Gone With the Wind" in its first eight days outgrossed every M-G-M picture that has played there. Similar terrific grosses are being chalked up country-wide, with M-G-M expecting to net $10,000,000 for this trip around the country.

Foreign Production Woes Cited

Foreign production location jaunts pay off only when American crews go along, according to various directors recently returned from overseas picture-making assignments. Major blame for the cancellation of some recent American efforts in foreign climes *after production was underway* is attributed to faulty budget and schedule estimates which did not take into account the fact

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that foreign crews are not trained in American methods and that the language barrier makes for interminable delays.

These views echo precisely the opinions advanced by the organized studio crafts for many years past, who held that the lure of "cheap" production abroad was a mental mirage, quite apart from the fact that such junkets deprived U. S. studio workers of much-needed employment.

TESMA Forum Planned

For the second year in succession, the new processes forum will be one of the biggest events at the TESMA-TOA convention which will run from October 31 through November 4 at the Conrad Hilton Hotel in Chicago.

Again this year, the forum will provide a panel of experts well versed on every phase of theatre equipment, accessories and new processes. Last year this event attracted more than 1,000 exhibitors and theatre equipment manufacturers, projectionists and dealers from all parts of the country.

With interest running high among projectionists and theatre owners concerning the selection of the proper lens to solve the problems of their particular theatre and the projection process being used there, the display of lenses will be the largest ever seen. In addition, every projector manufacturer in the United States will show his products along with a host of other equipment producers.

New Ampex Loudspeakers

Two new loudspeaker systems, especially designed to reproduce the wider frequency range possible with magnetic sound, are now available from Ampex Corp., Redwood City, Calif. Future Ampex installations in theatres having a seating capacity of 1000 to 1500 will be equipped with the new Model 5050. This unit consists of two low-frequency speakers and their baffle, a high-frequency driver and horn, and a crossover network. The complete system is, in inches, 84 high, 72 wide and 36 deep.

For larger theatres with a seating capacity between 1500 and 2000, Ampex has designed the Model 5070. This speaker, installed with Ampex 60-watt stereophonic systems, includes two low-frequency speakers in a larger baffle, a high-frequency driver and horn, and a crossover network. Installed, the dimensions, in inches, are 79 high, 84 wide, and 48 deep.

RCA Antenaplex on West Coast

Three new offices on the West Coast to handle the Antenaplex Tv systems business have been opened by RCA Service Co. In the Pacific Northwest is an office at 718 Dearborn St., Seattle, in charge of Edward Long, who was formerly Antenaplex rep for Southern California. In Hollywood at 911 Orange Drive, these operations will be directed by Warren Burr, former supervisor in the Hollywood service branch; while in Northern California the rep will be Edward Norton at 2640 Bayshore Blvd.

The offices are staffed by technical experts with distribution systems experience. Antenaplex systems are finding increasing usefulness in multiple dwellings and motels, and in providing multiple outlets to serve entire communities with television service.

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CORRECTION

Rosco Laboratories, manufacturer of a number of chemical products for the projection room, is located at 367 Hudson Avenue, Brooklyn 1, N. Y. rather than 367 Hudson Street, as was stated in error in an advertisement that appeared last month in IP's Convention Supplement.

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AN EVALUATION OF OPTICAL SOUND

(Continued from page 8)

film produce less noticeable noises.

In Europe, however, very narrow slit-images are preferred. Most European soundhead manufacturers use images approximately 8 mils (20 microns) in width, and the German firm of Zeiss Ikon employs a 7-mil (18-micron) slit-image in Ernemann equipment. This writer sees no need for such narrow images. The American 1¼-mil slit-image, adopted as a standard by the Academy of Motion Picture Arts and Sciences, has everything to recommend it.

In every case the *length* of the slit-image is 0.084 inch (2.13 millimeters), slightly less than the width of the printed area of the track (0.1 in., or 2.54 mm.). The width of the sound record in a *completely modulated* variable-area track is the same as the length of the scanning beam. Only the loudest sounds have a modulation as great as this.

Focusing a Delicate Job

Every projectionist knows that the quality of the sound is poor when the optical tube is out of focus. The focusing procedure, though simple, is a delicate job. It can't be hurried. By running a 9,000-cycle test loop and plugging an output meter into the soundhead or preamplifier, the sound service engineer lines up the rotational, or azimuthal, adjustment of the tube. (The thin line of light must cut the track perpendicularly to the direction of film-travel.) Then he restores the focus by moving the tube nearer or farther away from the film-plane. In each case the needle of the output meter shows when the output is at maximum strength.

The projectionist can use the "flicker test" for focusing the optical unit, but he must guard against disturbing the rotational adjustment. If the scanning beam cuts the track at a slant, distortion will be produced.

Procedure for Test

Thread a short length of film having a high-frequency record (many very fine lines) into the soundhead. With the exciter turned on, and with a white card placed in front of the photocell so that the exciting light forms a spot on it, "inch" the film down *very slowly* by means of the projector handwheel. The soundtrack frequency lines will throw shadows on the card.

If the shadows move *upward*, the optical tube should be *farther* from the film; if the shadows move *downward* (in the same direction that the film moves), the tube should be *closer* to the film. When the unit is in perfect focus, the spot of light on the card will flicker uniformly as the film moves down through the beam.

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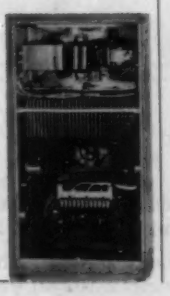

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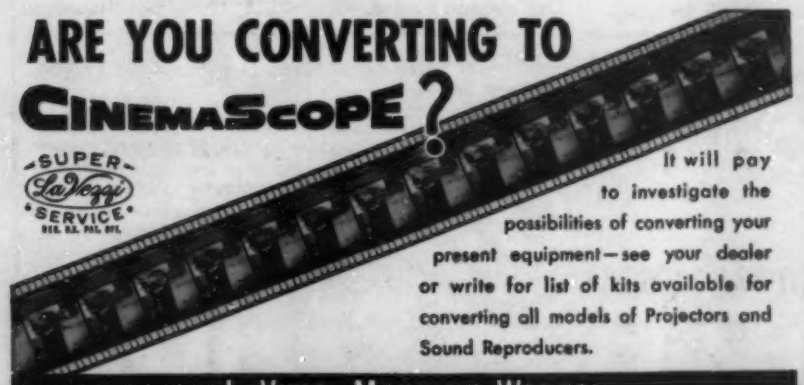

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track is accomplished by means of a flanged guide-roller on the older soundheads, and by the pressure-roller on most rotary-stabilizer heads. Once made, this adjustment is good for years. It needs to be changed only when frame-line noise and sprocket-hole "motor-boating" appear in the sound.

In order to simplify soundhead optical adjustments, a few foreign manufacturers illuminate the soundtrack with a wide beam of bright light and project an enlarged image of the

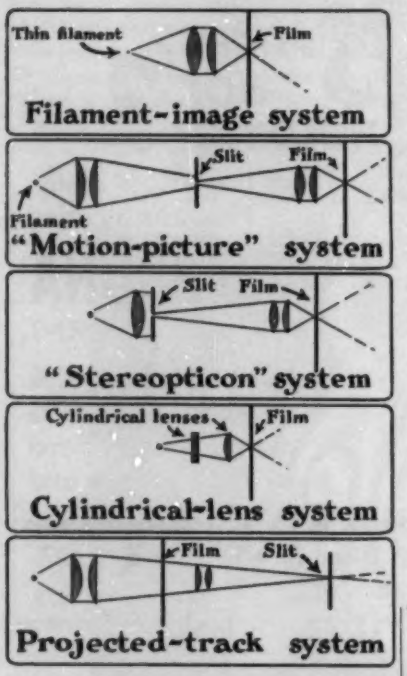

FIG. 2. Five methods of optical scanning.

track on a mechanical slit large enough to be adjusted visually by the projectionist. The light emerging from this slit is directed to the photocell by means of a condensing lens.

Another simplification of soundhead optics is found in the cylindrical-lens system which forms an elongated image of the exciter filament on the soundtrack. The cylindrical lenses produce a line of light having a width only 1/10th that of the lamp filament, and hence no mechanical slit is used. This is a popular system for 16-mm and other portable projectors because of its high luminous efficiency and "fixed-focus" characteristics.

All of these optical systems are shown diagrammatically in Fig. 2.

Photocell Signal Is Weak

No matter what kind of scanning system is used, the photosensitive cathode-plate of the photoelectric cell is the screen upon which the modulated scanning beam is projected. The cell converts the flickering light into fluctuating electric currents which waver in conformity with the photographic variations of the soundtrack. The currents emitted by the photocell are very weak, and must be amplified as much as 10,000,000,000 times to gain sufficient power to actuate the loudspeakers.

Even though the action of the phototube still seems like a modern electronic miracle, many of the basic principles of photoelectricity were discovered as long ago as 1845, the year that Alexandre Becquerel, a French physicist, discovered that glass-enclosed voltaic cells ("wet batteries") gave higher voltage when strongly illuminated.

This early discovery led directly to the Wein and Arcturus batteries which were introduced commercially in 1929, almost a decade after regular photoemissive cells had been devised. These miniature voltaic cells were arranged so that light impinging on one plate generated considerable current.

[TO BE CONTINUED]

NBC Film Division Upsurge

Film division of National Broadcasting Co. is now supplying Tv stations with a total of 736 *weekly* half hours of local programming via film prints, as compared with 235 at the same time last year.

MONTHLY CHAT

(Continued from page 5)

room, but instead are caused by inherent flaws in the process, it would seem that 20th-Fox is trying to pass the buck to the projectionist for production faults. As the process grows older, these faults are being slowly corrected. Witness the delivery to Hollywood of greatly-improved 'Scope taking lenses from Bausch & Lomb.

However, one thing is clear. After spending millions of dollars and much effort in persuading exhibitors to install CinemaScope, Fox now realizes that the projectionist is also important. Without his effort, patience, and technical savy, CinemaScope might often drive people out of the theatre rather than bring them in; then this process would never reach a state of full development.

It is interesting to speculate on what the role of the projectionist may be during years to come. The complexity of his work has increased tremendously during the last 25 years, and is likely to become even more complicated. Although jobs—in the theatre at least—may be fewer in the future, there is consolation in the fact that the dignity and responsibility of the projectionist's position continues to increase. J.M.

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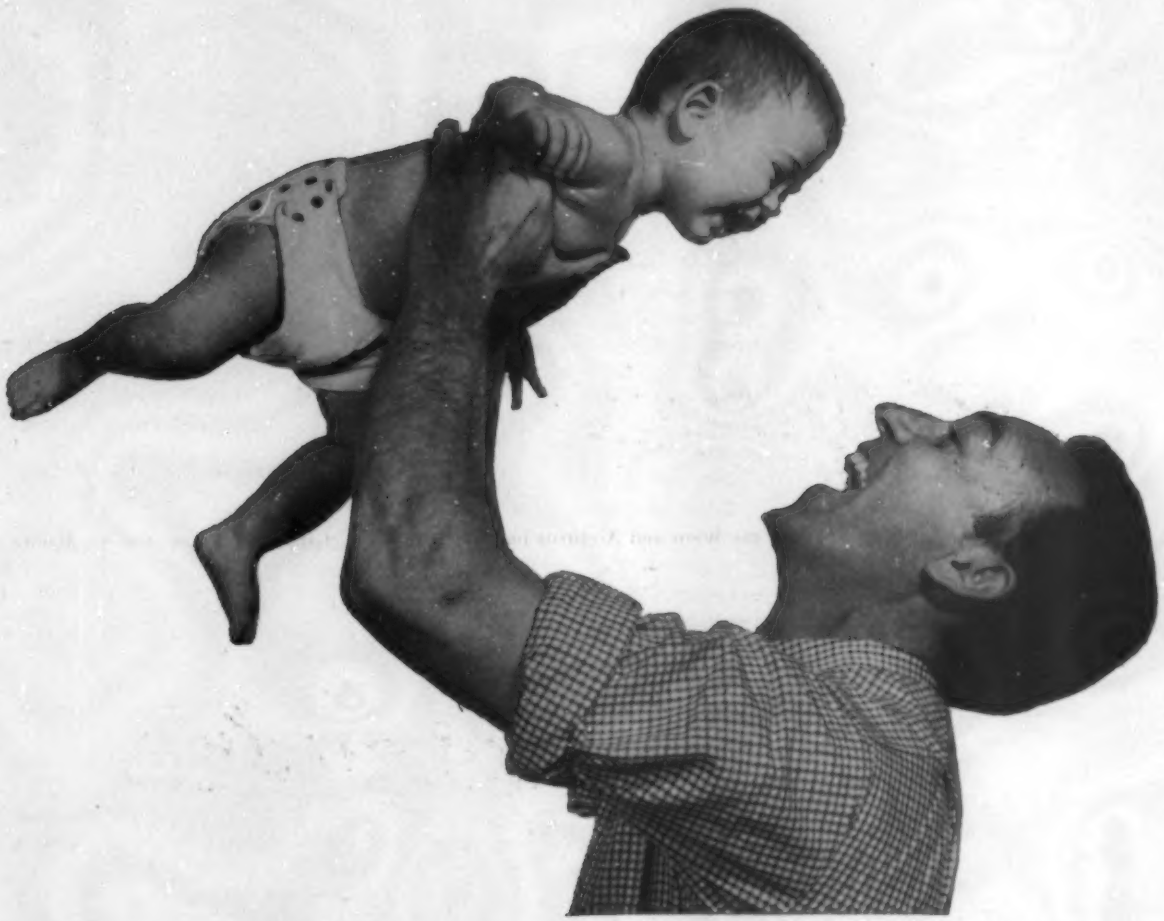

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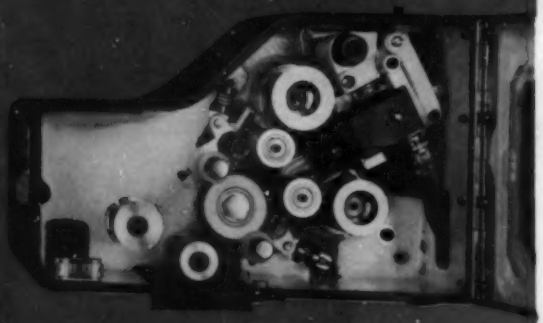

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